Sentinel Public Training

QRP Lab Session: Answer Key

1. Input Files

Monitoring File

wp001_monitoring.sas7bdat

	periodid	startdate	indenddate	indendoptions	fupenddate	cdpend
1	1	01JAN2008	31DEC2010		31DEC2010	N

Cohort File

wp001_cohort.sas7bdat

	cohortgrp	coverage	enrolgap	enrdays	enrdaysaftind	type1	type2	type3	type4	type5	type6	chartres	sex	race	hispanic	agestrat
1	typ_is	MD	45	183	.	N	Y	N	N	N	N	N				18-39 40-54 55-65
2	atyp_is	MD	45	183	.	N	Y	N	N	N	N	N				18-39 40-54 55-65
3	typ_ich	MD	45	183	.	N	Y	N	N	N	N	N				18-39 40-54 55-65
4	atyp_ich	MD	45	183	.	N	Y	N	N	N	N	N				18-39 40-54 55-65

Type 2 File

wp001_type2.sas7bdat

	group	t2cohortdef	t2washper	ittdays	episodegaptype	episodegap	expextper	minepisdur	maxepisdur	mindaysupp
1	typ_is	01	183	.	F	30	30	1	.	1
2	typ_ich	01	183	.	F	30	30	1	.	1
3	atyp_is	01	183	.	F	30	30	1	.	1
4	atyp_ich	01	183	.	F	30	30	1	.	1

…

	enrdaysaftepi	t2fupwashper	blackoutper	eventcount	censor_output_cat	censor_dth	neverexposedcohort	t2atriskstart
1	.	60	1	2	0-364 365-729 730-1094 1095+	Y	N	.
2	.	60	1	2	0-364 365-729 730-1094 1095+	Y	N	.
3	.	60	1	2	0-364 365-729 730-1094 1095+	Y	N	.
4	.	60	1	2	0-364 365-729 730-1094 1095+	Y	N	.

User-Defined Strata File

wp001_type2strata.sas7bdat

	tableid	levelid	levelvars
1	t2cida	000	
2	t2cida	001	year
3	t2cida	002	sex
4	t2cida	003	agegroup
5	t2censor	701	censdays_value_cat

Cohort Codes File

wp001_cohortcodes.sas7bdat

Exposure index-defining codes (excerpt)

	group	stockgroup	codecat	codetype	code	caresettingprincipal	t1_index	t2_index	t2_fup	conc_fup	t3_index	t3_fup	t4_index	t4_fup	t5_index	t6_index	productapprovaldate	productmarketingdate	otherproductdate	excludesupply	codesupply	rawlabdatetype	rawlabresult
1	typ_is	FLUPHENAZINEHCL	RX	11	00003080110		NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
2	typ_is	FLUPHENAZINEHCL	RX	11	00003082030		NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
3	typ_is	FLUPHENAZINEHCL	RX	11	00003082050		NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
4	typ_is	FLUPHENAZINEHCL	RX	11	00003086350		NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
5	typ_is	FLUPHENAZINEHCL	RX	11	00003087750		NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
6	typ_is	FLUPHENAZINEHCL	RX	11	00003095650		NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
7	typ_is	CHLORPROMAZINEHCL	RX	11	00007506315		NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
8	typ_is	CHLORPROMAZINEHCL	RX	11	00007506415		NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
9	typ_is	CHLORPROMAZINEHCL	RX	11	00007506615		NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
10	typ_is	CHLORPROMAZINEHCL	RX	11	00007507244		NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	

Exposure incidence-defining codes (excerpt)

	group	stockgroup	codecat	codetype	code	caresettingprincipal	t1_index	t2_index	t2_fup	conc_fup	t3_index	t3_fup	t4_index	t4_fup	t5_index	t6_index	productapprovaldate	productmarketingdate	otherproductdate	excludesupply	codesupply	rawlabdatetype	rawlabresult
6035	typ_is	OLANZAPINEFLUOXETIN	RX	11	00002323030		NOT	IOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
6036	typ_is	OLANZAPINEFLUOXETIN	RX	11	00002323101		NOT	IOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
6037	typ_is	OLANZAPINEFLUOXETIN	RX	11	00002323130		NOT	IOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
6038	typ_is	OLANZAPINEFLUOXETIN	RX	11	00002323133		NOT	IOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
6039	typ_is	OLANZAPINEFLUOXETIN	RX	11	00002323201		NOT	IOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
6040	typ_is	OLANZAPINEFLUOXETIN	RX	11	00002323230		NOT	IOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
6041	typ_is	OLANZAPINEFLUOXETIN	RX	11	00002323233		NOT	IOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
6042	typ_is	OLANZAPINEFLUOXETIN	RX	11	00002323301		NOT	IOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
6043	typ_is	OLANZAPINEFLUOXETIN	RX	11	00002323330		NOT	IOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
6044	typ_is	OLANZAPINEFLUOXETIN	RX	11	00002323333		NOT	IOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	

Outcome-defining codes (excerpt)

	group	stockgroup	codecat	codetype	code	caresettingprincipal	t1_index	t2_index	t2_fup	conc_fup	t3_index	t3_fup	t4_index	t4_fup	t5_index	t6_index	productapprovaldate	productmarketingdate	otherproductdate	excludesupply	codesupply	rawlabdatetype	rawlabresult
12069	typ_is	Ischemicstroke	DX	09	43301	'IPP'	NOT	NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12070	typ_is	Ischemicstroke	DX	09	43311	'IPP'	NOT	NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12071	typ_is	Ischemicstroke	DX	09	43321	'IPP'	NOT	NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12072	typ_is	Ischemicstroke	DX	09	43331	'IPP'	NOT	NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12073	typ_is	Ischemicstroke	DX	09	43381	'IPP'	NOT	NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12074	typ_is	Ischemicstroke	DX	09	43391	'IPP'	NOT	NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12075	typ_is	Ischemicstroke	DX	09	43401	'IPP'	NOT	NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12076	typ_is	Ischemicstroke	DX	09	43411	'IPP'	NOT	NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12077	typ_is	Ischemicstroke	DX	09	43491	'IPP'	NOT	NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12078	typ_is	Ischemicstroke	DX	09	436	'IPP'	NOT	NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12079	typ_ich	Intracranialhemorrhage	DX	09	430	'IPP'	NOT	NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12080	typ_ich	Intracranialhemorrhage	DX	09	431	'IPP'	NOT	NOT	DEF	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	

Outcome incidence-defining codes (excerpt)

	group	stockgroup	codecat	codetype	code	caresettingprincipal	t1_index	t2_index	t2_fup	conc_fup	t3_index	t3_fup	t4_index	t4_fup	t5_index	t6_index	productapprovaldate	productmarketingdate	otherproductdate	excludesupply	codesupply	rawlabdatetype	rawlabresult
12093	typ_is	Ischemicstroke	DX	09	43301		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12094	typ_is	Ischemicstroke	DX	09	43311		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12095	typ_is	Ischemicstroke	DX	09	43321		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12096	typ_is	Ischemicstroke	DX	09	43331		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12097	typ_is	Ischemicstroke	DX	09	43381		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12098	typ_is	Ischemicstroke	DX	09	43391		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12099	typ_is	Ischemicstroke	DX	09	43401		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12100	typ_is	Ischemicstroke	DX	09	43411		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12101	typ_is	Ischemicstroke	DX	09	43491		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12102	typ_is	Ischemicstroke	DX	09	436		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12103	typ_is	Intracranialhemorrhage	DX	09	430		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12104	typ_is	Intracranialhemorrhage	DX	09	431		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12105	typ_ich	Ischemicstroke	DX	09	43301		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12106	typ_ich	Ischemicstroke	DX	09	43311		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12107	typ_ich	Ischemicstroke	DX	09	43321		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12108	typ_ich	Ischemicstroke	DX	09	43331		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12109	typ_ich	Ischemicstroke	DX	09	43381		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12110	typ_ich	Ischemicstroke	DX	09	43391		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12111	typ_ich	Ischemicstroke	DX	09	43401		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12112	typ_ich	Ischemicstroke	DX	09	43411		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12113	typ_ich	Ischemicstroke	DX	09	43491		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12114	typ_ich	Ischemicstroke	DX	09	436		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	
12115	typ_ich	Intracranialhemorrhage	DX	09	430		NOT	NOT	IOC	NOT	NOT	NOT	NOT	NOT	NOT	NOT	.	.	.	N		.	

Inclusion / Exclusion Codes File

wp001_exclusion.sas7bdat

	group	stockgroup	caresettingprincipal	code	codecat	codetype	condinclusion	subcondinclusion	condlevel	subcondlevel	condfrom	condto	codedays	codesupply	excludesupply	codepop	indexdate	rawlabdatetype	rawlabresult
1	typ_is	Seniledementiauncomplicated		2900	DX	09	0		1 dementia	dementia	-183	0	1		. N				
2	typ_is	Preseniledementiauncomplicated		29010	DX	09	0		1 dementia	dementia	-183	0	1		. N				
3	typ_is	Preseniledementiawithdelirium		29011	DX	09	0		1 dementia	dementia	-183	0	1		. N				
4	typ_is	Preseniledementiawithdelusiona		29012	DX	09	0		1 dementia	dementia	-183	0	1		. N				
5	typ_is	Preseniledementiawithdepressiv		29013	DX	09	0		1 dementia	dementia	-183	0	1		. N				
6	typ_is	Seniledementiawithdelusionalfe		29020	DX	09	0		1 dementia	dementia	-183	0	1		. N				
7	typ_is	Seniledementiawithdepressivefe		29021	DX	09	0		1 dementia	dementia	-183	0	1		. N				
8	typ_is	Seniledementiawithdelirium		2903	DX	09	0		1 dementia	dementia	-183	0	1		. N				
9	typ_is	Vasculardementiauncomplicated		29040	DX	09	0		1 dementia	dementia	-183	0	1		. N				
10	typ_is	Vasculardementiawithdelirium		29041	DX	09	0		1 dementia	dementia	-183	0	1		. N				

…

Covariate Codes File

wp001_covariates.sas7bdat

	studyname	covarnum	code	stockgroup	codecat	codetype	caresettingprincipal	covfrom	covto	keep	codedays	codesupply	excludesupply
1	AMI	1	4100	AMI	DX	09		-183	-1	0	1		.
2	AMI	1	410	AMI	DX	09		-183	-1	0	1		.
3	AMI	1	41000	AMI	DX	09		-183	-1	0	1		.
4	AMI	1	41001	AMI	DX	09		-183	-1	0	1		.
5	AMI	1	41002	AMI	DX	09		-183	-1	0	1		.
6	AMI	1	4101	AMI	DX	09		-183	-1	0	1		.
7	AMI	1	41010	AMI	DX	09		-183	-1	0	1		.
8	AMI	1	41011	AMI	DX	09		-183	-1	0	1		.
9	AMI	1	41012	AMI	DX	09		-183	-1	0	1		.
10	AMI	1	4102	AMI	DX	09		-183	-1	0	1		.

Comparison File

wp001_psm.sas7bdat

	analysisgrp	matchanalysis	eoi	ref	caliper	ratio	class	noclass	hdps	hdpswinfrom	hdpswinto	matchvars
1	ischemic_stroke	PS	typ_is	atyp_is	0.05	1	Sex Covar1 Covar2 Covar3 Covar4 Covar5 Covar6 Covar7 Covar8 Covar9 Covar10 Covar11 Covar12	Age	N		.	.
2	intracranial_hemorrhage	PS	typ_ich	atyp_ich	0.05	1	Sex Covar1 Covar2 Covar3 Covar4 Covar5 Covar6 Covar7 Covar8 Covar9 Covar10 Covar11 Covar12	Age	N		.	.

Groups Table File

groups_table.sas7bdat

	header	group1	runid1	group2	runid2	grouplabel	combinedgroupname	order	Historyofuse	Recordedhistory	Utilizationintensity	highlight_vars	alphabetical_covarsort	Baselinelabel
1	Ischemic Stroke	typ_is	r01			Typical Antipsychotics		1					N	
2	Intracranial Hemorrhage	typ_ich	r01			Typical Antipsychotics		2					N	
3	Ischemic Stroke	atyp_is	r01			Atypical Antipsychotics		3					N	
4	Intracranial Hemorrhage	atyp_ich	r01			Atypical Antipsychotics		4					N	

Create Report File

createreport.sas7bdat

	type	requestid	groups_table	columns_tabl	alltypefiles	monitoringfile	cohortfile	userstrata	covariatecodes	customtitle
1	2	public_mpl1r_wp001	groups_table		wp001_type2	wp001_monitoring	wp001_cohort	wp001_type2strata	wp001_covariates	Typical and Atypical Antipsychotics and Stroke

	exclude	stratify_by_level	zipfile	agegroupfmt	logo	output_baselinetable	look_start	look_end	output_cdf_km	cdf_title1	km_title1	km_title2	cdf_footnote1	cdf_footnote2
1	8	000 001 002 003			sentinel_logo.jpg	Y	1	1	N					

	km_footnote1	km_footnote2	cdf_xmin	cdf_xmax	cdf_xtick	km_xmin	km_xmax	km_xtick	cdf_ymin	cdf_ymax	cdf_ytick	km_ymin	km_ymax	km_ytick	km_ep_xmin	km_ep_xmax	km_ep_xtick
1			.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	km_ep_ymin	km_ep_ymax	km_ep_ytick	censoring_display	cens_elig	cens_dth	cens_dpend	cens_qryend	cens_episend	cens_spec	cens_event	displayn	line_spacing
1	.	.	.			.	.	.	.	.	.	N	2

2. Helper File SAS Code

Monitoring File

🗎 1_monitoring.sas

```sas
/***********************************************************************
1. Create Monitoring File
***********************************************************************/

%let basename = C:/Public_Training_Materials/Lab;

libname out "&basename./public_mpl1r_wp001_synpufs_v01/inputfiles";
%let wpnum = wp001 ;

data out.&wpnum._monitoring;
      format periodid 8. startdate date9. indenddate date9. indendoptions $10. fupenddate date9. cdpend $1. ;
      periodid = 1;
      startdate = '01JAN2008'd;  /* Index Start Date; Valid values: calendar date in format "29AUG2019"d; Required */
      indenddate = '31DEC2010'd; /* Index End Date; Valid values: calendar date in format "29AUG2019"d; Required */
      indendoptions = ' ';
      fupenddate = '31DEC2010'd; /* Follow-Up End Date; Valid values: calendar date in format "29AUG2019"d; Required */
      cdpend = 'N';  /* Censor on Common Components Data Completeness Date Indicator; Valid values: 'Y' or 'N';
Required */
run;
```

Cohort File

🗎 2_cohort.sas

```sas
/***********************************************************************
2. Create Cohort File
***********************************************************************/

%let basename = C:/Public_Training_Materials/Lab;

libname out "&basename./public_mpl1r_wp001_synpufs_v01/inputfiles";
%let wpnum = wp001 ;
```

```sas
%let grouplist = typ_is typ_ich atyp_is atyp_ich ;
%let groupcount = %sysfunc(Countw(&grouplist));
options mlogic mprint symbolgen;
ods listing close;


%macro cohortcreate(cohortlist);

proc datasets lib=work nolist nowarn;
      delete cohort;
quit;

%let cohortcount = %sysfunc(Countw(&&&cohortlist));

%do a = 1 %to &cohortcount;
      %let curr_name = %scan(&&&cohortlist, &a);

      data work.cht;
      format cohortgrp $40. coverage $2. enrolgap 8. enrdays 8. enrdaysaftind 8. type1 $1. type2 $1. type3 $1. type4
$1. type5 $1. type6 $1. chartres $1. sex $3. race $1. hispanic $1. agestrat $100.;
      cohortgrp = "&curr_name";
      coverage = 'MD'; /* Coverage Type Requirement; Valid values: 'MD' 'M' or 'D' for medical and drug, medical only,
or drug only*/
      enrolgap = 45; /* Enrollment Gap; Numerical */
      enrdays = 183; /* Minimum Pre-Index Enrollment Days; Numerical*/
      enrdaysaftind = .;
      type1 = 'N'; /* Type 1 Cohort Identification Strategy Indicator; Valid values: 'Y' or 'N' */
      type2 = 'Y'; /* Type 2 Cohort Identification Strategy Indicator; Valid values: 'Y' or 'N' */
      type3 = 'N'; /* Type 3 Cohort Identification Strategy Indicator; Valid values: 'Y' or 'N' */
      type4 = 'N'; /* Type 4 Cohort Identification Strategy Indicator; Valid values: 'Y' or 'N' */
      type5 = 'N'; /* Type 5 Cohort Identification Strategy Indicator; Valid values: 'Y' or 'N' */
      type6 = 'N'; /* Type 6 Cohort Identification Strategy Indicator; Valid values: 'Y' or 'N' */
      sex = ''; /* Sex criteria to apply to cohort; Valid values: 'A' 'F' 'M' 'U'; Leave blank if no restrictions */
      race = ''; /* Race criteria to apply to cohort; Leave blank if no restrictions */
      hispanic = ''; /* Hispanic criteria to apply to cohort; Leave blank if no restrictions */
      agestrat = '18-39 40-54 55-65';
      chartres = 'N';
      run;

      proc append data = work.cht
                  base = work.cohort force;
      run;
```

```
%end;

data out.&wpnum._cohort;
     set work.cohort;
run;

%mend;


%cohortcreate(grouplist);
```

Type 2 File

3_type.sas

```
/*****************************************************************************
3. Create Type 2 File
*****************************************************************************/

%let basename = C:/Public_Training_Materials/Lab;

libname out "&basename./public_mpl1r_wp001_synpufs_v01/inputfiles";
%let wpnum = wp001 ;
%let grouplist = typ_is typ_ich atyp_is atyp_ich ;
%let groupcount = %sysfunc(Countw(&grouplist));
options mlogic mprint symbolgen;
ods listing close;

%macro typecreate(typelist);

proc datasets lib=work nolist nowarn;
     delete type;
quit;

%let typecount = %sysfunc(Countw(&&&typelist));

%do a = 1 %to &typecount;
     %let curr_name = %scan(&&&typelist, &a);

     data work.type;
```

```sas
        format group $40. t2cohortdef $2. t2washper 8. ittdays 8. episodegaptype $1. episodegap 8. expextper 8.
               minepisdur 8. maxepisdur 8. mindaysupp 8. enrdaysaftepi 8. t2fupwashper 8. blackoutper 8. eventcount 8.
               censor_output_cat $30. censor_dth $1. neverexposedcohort $1. t2atriskstart 8.;
        group = "&curr_name";
        t2cohortdef = '01'; /* Allowed Number of Exposure Episodes per Individual;
                             Valid values: '01' '02' '03' for first episode only, all episodes, or all episodes until
event*/
        t2washper = 183 ; /* Type 2 Exposure Washout Period; Numerical; Required - enter 0 if not using */
        ittdays = . ; /* Requester-defined Exposure Episode Length; Numerical; Leave blank if creating as-treated
episodes */
        episodegaptype= 'F'; /* Treatment Episode Gap Type; Valid values: 'F' or 'P' for fixed or percent */
        episodegap = 30; /* Exposure Episode Gap; Numerical; Required - enter 0 if not using */
        expextper = 30; /* Exposure Episode Extension Period; Numerical; Optional */
        minepisdur = 1; /* Minimum Exposure Episode Duration; Numerical; Required - enter 0 if not using */
        maxepisdur = .; /* Maximum Exposure Episode Duration; Numerical; Optional */
        mindaysupp = 1; /* Minimum Days Supplied; Numerical; Required - enter 0 if not using */
        t2fupwashper = 60; /* Type 2 HOI Washout Period; Numerical; Required - enter 0 if not using */
        blackoutper = 1; /* HOI Blackout Period; Numerical; Required - enter 0 if not using */
        censor_dth = 'Y'; /* Censor Episodes at Evidence of Death; Valid values: 'Y' or 'N'; Required*/
        censor_output_cat = '0-364 365-729 730-1094 1095+';
        enrdaysaftepi = .;
        eventcount = 2;
        neverexposedcohort= 'N';
        t2atriskstart = .;
        run;

        proc append data = work.type
                    base = work.type2 force;
        run;
%end;

data out.&wpnum._type2;
        set work.type2;
run;

proc datasets lib=work nolist nowarn;
        delete type2;
quit;
%mend;

%typecreate(grouplist);
```

Strata Levels File

📄 4_strata.sas

```sas
/************************************************************************************************
4. Create the Strata Levels File
*************************************************************************************************/

%let basename = C:/Public_Training_Materials/Lab;

libname out "&basename./public_mpl1r_wp001_synpufs_v01/inputfiles";
%let wpnum = wp001 ;

data out.&wpnum._type2strata;
format tableid $20. levelid $3. levelvars $30.;
tableid = "t2cida";
levelid = "000";
levelvars = "";
output;

tableid = "t2cida";
levelid = "001";
levelvars = "year";
output;

tableid = "t2cida";
levelid = "002";
levelvars = "sex";
output;

tableid = "t2cida";
levelid = "003";
levelvars = "agegroup";
output;

tableid = "t2censor";
levelid = "701";
levelvars = "censdays_value_cat";
output;
run;
```

Cohort Codes File

📄 5_cohortcodes.sas

```sas
/******************************************************************************
5. Create Cohort Codes File
******************************************************************************/

%let basename = C:/Public_Training_Materials/Lab;

libname in "&basename./codes";
libname out "&basename./public_mpl1r_wp001_synpufs_v01/inputfiles";
%let wpnum = wp001 ;
options mlogic mprint symbolgen;
ods listing close;

/*SPECIFY EXPOSURE INDEX-DEFINING CODES*/
%macro indexcodes (title,group,codes);
      data indexcodes&title.;
      format group $40. stockgroup $30. codecat $2. codetype $3. code1 $11. code $11. caresettingprincipal $41.
            t1_index $3. t2_index $3. t2_fup $3. conc_fup $3. t3_index $3. t3_fup $3. t4_index $3. t4_fup $3. t5_index
$3. t6_index $3. productapprovaldate Date9. productmarketingdate Date9. otherproductdate Date9. excludesupply $1.
codesupply 8. rawlabdatetype $3. rawlabresult $30. ;
      set in.&codes.;
      group = "&group.";
      stockgroup = compress (descrip, ', ./\_-<>=;&[](){}%');
      codecat = CodeCat1;
      codetype = CodeType1;
      code = compress (code1, ".");
      caresettingprincipal = " ";
      t1_index = 'NOT';
      t2_index = 'DEF'; /* When defining index-defining codes for exposure, t2_index must = 'DEF' */
      t2_fup = 'NOT';   /* When defining exposure, t2_fup must = 'NOT' */
      conc_fup = 'NOT';
      t3_index = 'NOT';
      t3_fup = 'NOT';
      t4_index = 'NOT';
      t4_fup = 'NOT';
      t5_index = 'NOT';
      t6_index = 'NOT';
```

```sas
        productapprovaldate = .;
        productmarketingdate = .;
        otherproductdate = .;
        excludesupply = "N";
        codesupply = . ;
        rawlabdatetype = "";
        rawlabresult = "";
        drop code1 codecat1 codetype1 descrip;
        run;
%mend;


%indexcodes (1,typ_is, typical_antipsychotics);    /*Fill in group 1 name and code list to define index exposure */
%indexcodes (2,typ_ich, typical_antipsychotics);   /*Fill in group 2 name and code list to define index exposure */
%indexcodes (3,atyp_is, atypical_antipsychotics);  /*Fill in group 3 name and code list to define index exposure */
%indexcodes (4,atyp_ich, atypical_antipsychotics); /*Fill in group 4 name and code list to define index exposure */

%macro exportindexcodes(start,end);
        data index;
                set %do i=&start. %to &end.;
                        indexcodes&i.
                    %end;
                ;
        run;
%mend;
%exportindexcodes (1,4);



/*SPECIFY EXPOSURE INCIDENCE AND TRUNCATION CODES*/
%macro inc_trunc_codes (title,group,codes);
        data inc_trunc_codes&title.;
        format group $40. stockgroup $30. codecat $2. codetype $3. code1 $11. code $11. caresettingprincipal $41.
                t1_index $3. t2_index $3. t2_fup $3. conc_fup $3. t3_index $3. t3_fup $3. t4_index $3. t4_fup $3. t5_index
$3. t6_index $3. productapprovaldate Date9. productmarketingdate Date9. otherproductdate Date9. excludesupply $1.
codesupply 8. rawlabdatetype $3. rawlabresult $3. ;
        set in.&codes.;
        group = "&group.";
        stockgroup = compress (descrip, ', ./\_-<>=;&[](){}%');
        codecat = CodeCat1;
        codetype = CodeType1;
        code = compress (code1, ".");
        caresettingprincipal = " ";
```

```sas
        t1_index = 'NOT';
        t2_index = 'IOT'; /* When defining incidence and truncation criteria for exposure, t2_index should = 'IOT' */
        t2_fup = 'NOT';   /* When defining exposure, t2_fup must = 'NOT' */
        conc_fup = 'NOT';
        t3_index = 'NOT';
        t3_fup = 'NOT';
        t4_index = 'NOT';
        t4_fup = 'NOT';
        t5_index = 'NOT';
        t6_index = 'NOT';
        productapprovaldate = .;
        productmarketingdate = .;
        otherproductdate = .;
        excludesupply = "N";
        codesupply = . ;
        rawlabdatetype = "";
        rawlabresult = "";
        drop code1 codecat1 codetype1 descrip;
        run;
%mend;


%inc_trunc_codes (1,typ_is, atypical_antipsychotics);  /*Fill in group 1 name and code list to define incidence and
truncation criteria */
%inc_trunc_codes (2,typ_ich, atypical_antipsychotics); /*Fill in group 2 name and code list to define incidence and
truncation criteria */
%inc_trunc_codes (3,atyp_is, typical_antipsychotics);  /*Fill in group 3 name and code list to define incidence and
truncation criteria */
%inc_trunc_codes (4,atyp_ich, typical_antipsychotics); /*Fill in group 4 name and code list to define incidence and
truncation criteria */


%macro exportinc_trunc_codes(start,end);
        data incidence;
            set %do i=&start. %to &end.;
                    inc_trunc_codes&i.
                %end;
            ;
        run;
%mend;
%exportinc_trunc_codes (1,4);
```

```
/*SPECIFY OUTCOME-DEFINING CODES*/
%macro outcomecodes (title,group,codes);
     data outcomecodes&title.;
     format group $40. stockgroup $30. codecat $2. codetype $3. code1 $11. code $11. caresettingprincipal $41.
          t1_index $3. t2_index $3. t2_fup $3. conc_fup $3. t3_index $3. t3_fup $3. t4_index $3. t4_fup $3. t5_index
$3. t6_index $3. productapprovaldate Date9. productmarketingdate Date9. otherproductdate Date9. excludesupply $1.
codesupply 8. rawlabdatetype $3. rawlabresult $3. ;
     set in.&codes.;
     group = "&group.";
     stockgroup = compress (descrip, ', ./\_-<>=;&[](){}%');
     codecat = CodeCat1;
     codetype = CodeType1;
     code = compress (code1, ".");
     caresettingprincipal = "'IPP'";
     t1_index = 'NOT';
     t2_index = 'NOT';  /* When defining outcome, t2_index must = 'NOT' */
     t2_fup = 'DEF';    /* When defining outcome, t2_fup must = 'DEF' */
     conc_fup = 'NOT';
     t3_index = 'NOT';
     t3_fup = 'NOT';
     t4_index = 'NOT';
     t4_fup = 'NOT';
     t5_index = 'NOT';
     t6_index = 'NOT';
     productapprovaldate = .;
     productmarketingdate = .;
     otherproductdate = .;
     excludesupply = "N";
     codesupply = . ;
     rawlabdatetype = "";
     rawlabresult = "";
     drop code1 codecat1 codetype1 descrip;
     run;
%mend;

%outcomecodes (1,typ_is, ischemic_stroke);          /*Fill in group 1 name and code list to define outcome */
%outcomecodes (2,typ_ich, intracranial_hemorrhage);  /*Fill in group 2 name and code list to define outcome */
%outcomecodes (3,atyp_is, ischemic_stroke);          /*Fill in group 3 name and code list to define outcome */
%outcomecodes (4,atyp_ich, intracranial_hemorrhage); /*Fill in group 4 name and code list to define outcome */

%macro exportoutcomecodes(start,end);
```

```sas
      data outcome;
            set %do i=&start. %to &end.;
                        outcomecodes&i.
                  %end;
            ;
      run;
%mend;
%exportoutcomecodes (1,4);


/*SPECIFY OUTCOME INCIDENCE-DEFINING CODES*/
%macro outcomeinccodes (title,group,codes);
      data outcomeinccodes&title.;
      format group $40. stockgroup $30. codecat $2. codetype $3. code1 $11. code $11. caresettingprincipal $41.
            t1_index $3. t2_index $3. t2_fup $3. conc_fup $3. t3_index $3. t3_fup $3. t4_index $3. t4_fup $3. t5_index
$3. t6_index $3. productapprovaldate Date9. productmarketingdate Date9. otherproductdate Date9. excludesupply $1.
codesupply 8. rawlabdatetype $3. rawlabresult $3. ;
      set in.&codes.;
      group = "&group.";
      stockgroup = compress (descrip, ', ./\_-<>=;&[](){}%');
      codecat = CodeCat1;
      codetype = CodeType1;
      code = compress (code1, ".");
      caresettingprincipal = " ";
      t1_index = 'NOT';
      t2_index = 'NOT'; /* When defining outcome incidence, t2_index must = 'NOT' */
      t2_fup = 'IOC';    /* When defining outcome incidence, t2_fup must = 'IOC' */
      conc_fup = 'NOT';
      t3_index = 'NOT';
      t3_fup = 'NOT';
      t4_index = 'NOT';
      t4_fup = 'NOT';
      t5_index = 'NOT';
      t6_index = 'NOT';
      productapprovaldate = .;
      productmarketingdate = .;
      otherproductdate = .;
      excludesupply = "N";
      codesupply = . ;
      rawlabdatetype = "";
      rawlabresult = "";
```

```
      drop code1 codecat1 codetype1 descrip;
      run;
%mend;

%outcomeinccodes (1,typ_is,intracranial_hemorrhage);  /*Fill in group 1 name and code list to define outcome
incidence*/
%outcomeinccodes (2,typ_ich,ischemic_stroke);          /*Fill in group 2 name and code list to define outcome
incidence */
%outcomeinccodes (3,atyp_is,intracranial_hemorrhage); /*Fill in group 3 name and code list to define outcome incidence
*/
%outcomeinccodes (4,atyp_ich,ischemic_stroke);         /*Fill in group 4 name and code list to define outcome
incidence*/

%macro exportoutcomeinccodes(start,end);
      data outcomeinc;
            set %do i=&start. %to &end.;
                  outcomeinccodes&i.
            %end;
         ;
      run;
%mend;
%exportoutcomeinccodes (1,4);


data out.&wpnum._cohortcodes;
set index incidence outcome outcomeinc;
run;
```

Inclusion/Exclusion Codes File

 6_exclusion.sas

```
/*******************************************************************************************************************
6. Create Inclusion/Exclusion Codes File
*******************************************************************************************************************/

%let basename = C:/Public_Training_Materials/Lab;

libname in "&basename./codes";
libname out "&basename./public_mpl1r_wp001_synpufs_v01/inputfiles";
%let wpnum = wp001 ;
```

```sas
%let grouplist = typ_is typ_ich atyp_is atyp_ich ;
%let groupcount = %sysfunc(Countw(&grouplist));
options mlogic mprint symbolgen;
ods listing close;


%macro exclusioncreate(exclusionlist);

proc datasets lib=work nolist nowarn;
      delete exclusion;
quit;

%let exclusioncount = %sysfunc(Countw(&&&exclusionlist));

%do a = 1 %to &exclusioncount;
      %let curr_name = %scan(&&&exclusionlist, &a);

      data work.excl;
      format group $40. stockgroup $30. caresettingprincipal $30. code $11. codecat $2. codetype $3.
            condinclusion 8. subcondinclusion 8. condlevel $30. subcondlevel $30.
                  condfrom 8. condto 8. codedays 8. codesupply 8. excludesupply $1.
                  codepop $2. indexdate $30. rawlabdatetype $3. rawlabresult $30. ;

      set in.dementia;
      group = "&curr_name";
      stockgroup = compress (descrip, ", .//_-<>=;&[]'(){}%");
      caresettingprincipal = " ";
      code = compress (code1, ' .//_-()%');
      codecat = codecat1;
      codetype = codetype1;
      condinclusion = 0; /* Condition Exclusion Indicator; Numerical; Valid values: 0 or 1 to exclude or include if
evidence of condition; Required */
      condlevel = "dementia"; /* Name of inclusion/exclusion condition; Required*/
      condfrom = -183; /* Evaluation Period Start; Numerical; Required */
      condto = 0; /* Evaluation Period End; Numerical; Required */
      codedays = 1; /* Indicates number of instances the criteria should be found in evaluation period; Numerical;
Required */
      subcondinclusion = 1;
      subcondlevel = "dementia";
      codesupply= .;
      excludesupply= "N";
      codepop="";
```

```
            indexdate="";
            rawlabdatetype = "";
            rawlabresult = "";
            drop code1 codecat1 codetype1 descrip ;
            run;

            proc append data = work.excl
                        base = work.exclusion force;
            run;
%end;

data out.&wpnum._exclusion;
      set work.exclusion;
run;

%mend;
%exclusioncreate(grouplist);
```

Covariate File

7_covariate.sas

```
/**********************************************************************************************
7. Create Covariate File
**********************************************************************************************/

%let basename = C:/Public_Training_Materials/Lab;

libname in "&basename./codes";
libname out "&basename./public_mpl1r_wp001_synpufs_v01/inputfiles";
%let wpnum = wp001 ;

proc sort data=in.covariates; by studyname; run;

data out.&wpnum._covariates;
      format studyname $50. covarnum 8. code $50. stockgroup $30. codecat $2. codetype $3.
             caresettingprincipal $30. covfrom 8. covto 8. keep 8. codedays 8. codesupply 8. excludesupply $1.;
      set in.covariates;
by studyname;
retain covarnum 0;
```

18

```sas
if first.studyname then covarnum + 1;

stockgroup = compress (studyname, ", './{};[]_-()%");
studyname = studyname;
codecat = codecat1;
codetype = codetype1;
code = compress (code1, '.');
caresettingprincipal = " ";
covfrom = -183;
covto = -1;
keep = 0;
codedays = 1;
codesupply = .;
excludesupply = "";
drop codecat1 codetype1 code1;
run;
```

Create Report File

8_report.sas

```sas
/********************************************************************************************************
8. Create Report Files
********************************************************************************************************/

%let basename = C:/Public_Training_Materials/Lab;

libname out "&basename./public_mpl1r_wp001_synpufs_v01/inputfiles";

%macro groups (title,group,grouplabel,header);
data groups_table&title.;
    format header $60. group1 $30. runid1 $10. group2 $30. runid2 $10. grouplabel $50.
            combinedgroupname $50. order 8. Historyofuse $50. Recordedhistory $50.
            Utilizationintensity $50. highlight_vars $60. alphabetical_covarsort $1.   Baselinelabel $50.;
    header = "&header.";
    group1 = "&group.";
    runid1= 'r01';
    group2 = "";
    runid2 = "";
```

```
            grouplabel= "&grouplabel.";
            combinedgroupname= "";
            order = &title.;
            Historyofuse = "";
            Recordedhistory = "";
            Utilizationintensity = "";
            highlight_vars = "";
            alphabetical_covarsort = 'N';
            Baselinelabel = "";
            run;
%mend;


%groups (1,typ_is, Typical Antipsychotics, Ischemic Stroke);
%groups (2,typ_ich, Typical Antipsychotics, Intracranial Hemorrhage);
%groups (3,atyp_is, Atypical Antipsychotics, Ischemic Stroke);
%groups (4,atyp_ich, Atypical Antipsychotics, Intracranial Hemorrhage);


%macro exportgroups(start,end);
        data out.groups_table;
                set %do i=&start. %to &end.;
                              groups_table&i.
                    %end;
                ;
        run;
%mend;


%exportgroups(1,4);



data out.createreport;
format type 1. requestid $23. groups_table $30. columns_table $30. alltypefiles $50.
monitoringfile $30. cohortfile $30. userstrata $30. covariatecodes $30.
customtitle $50. exclude $50. stratify_by_level $50.
zipfile $15. agegroupfmt $100. logo $30. output_baselinetable $1. look_start 1. look_end 1.
output_cdf_km $1. cdf_title1 $50. km_title1 $50. km_title2 $50. cdf_footnote1 $50. cdf_footnote2 $50.
km_footnote1 $50. km_footnote2 $50. cdf_xmin 8. cdf_xmax 8. cdf_xtick 8. km_xmin 8. km_xmax 8. km_xtick 8.
cdf_ymin 8. cdf_ymax 8. cdf_ytick 8. km_ymin 8. km_ymax 8. km_ytick 8. km_ep_xmin 8. km_ep_xmax 8. km_ep_xtick 8.
km_ep_ymin 8. km_ep_ymax 8. km_ep_ytick 8. censoring_display $40. cens_elig $20. cens_dth $20. cens_dpend $20.
cens_qryend $20. cens_episend $20. cens_spec $20. cens_event $20. displayn $1. line_spacing 8.;

type=2;
```

```
requestid= 'public_mpl1r_wp001';
groups_table= 'groups_table';
columns_table= '';
alltypefiles='wp001_type2';
monitoringfile= 'wp001_monitoring';
cohortfile= 'wp001_cohort';
userstrata= 'wp001_type2strata';
covariatecodes = 'wp001_covariates';
customtitle= 'Typical and Atypical Antipsychotics and Stroke';
exclude= '8';
stratify_by_level= '000 001 002 003';
zipfile= '';
agegroupfmt= '';
logo= 'sentinel_logo.jpg';
output_baselinetable= 'Y';
look_start= 1;
look_end= 1;
output_cdf_km= 'N';
cdf_title1= '';
km_title1='';
km_title2='';
cdf_footnote1='';
cdf_footnote2='';
km_footnote1='';
km_footnote2='';
cdf_xmin=.;
cdf_xmax=.;
cdf_xtick=.;
km_xmin=.;
km_xmax=.;
km_xtick=.;
cdf_ymin=.;
cdf_ymax=.;
cdf_ytick=.;
km_ymin=.;
km_ymax=.;
km_ytick=.;
km_ep_xmin=.;
km_ep_xmax=.;
km_ep_xtick=.;
km_ep_ymin=.;
```

```sas
km_ep_ymax=.;
km_ep_ytick=.;
censoring_display='';
cens_elig='';
cens_dth='';
cens_dpend='';
cens_qryend='';
cens_episend='';
cens_spec='';
cens_event='';
displayn='N';
line_spacing= 1.75;
run;
```

Propensity Score Model Comparison File

9_propensityscore.sas

```sas
/****************************************************************************************************
9. Create Propensity Score Model Comparison File
****************************************************************************************************/

%let basename = C:/Public_Training_Materials/Lab;

libname out "&basename./public_mpl1r_wp001_synpufs_v01/inputfiles";
%let wpnum = wp001 ;

%macro psm (title,analysis,eoi,ref);
      data psm&title.;
      format analysisgrp $40. matchanalysis $40. eoi $40. ref $40. caliper best12. ratio 8. class $999. noclass $999.
            hdps $1. hdpswinfrom 8. hdpswinto 8. matchvars $40.;
      analysisgrp = "&analysis.";
      matchanalysis = 'PS';
      eoi = "&eoi."; /* Exposure of Interest; Valid values: typ_is typ_ich atyp_is atyp_ich; Required */
      ref = "&ref."; /* Reference Group; Valid values: typ_is typ_ich atyp_is atyp_ich; Required */
      caliper=0.05; /* Matching Caliper; Numerical; Valid values: Any value between 0-1; Required */
      ratio = 1 ; /* Matching Ratio; Numerical; Valid values: For 1:1 fixed matching, enter 1.
                     For 1:n variable matching, enter numerical value for n; Required */
      class='Sex Covar1 Covar2  Covar3 Covar4 Covar5 Covar6 Covar7 Covar8 Covar9 Covar10 Covar11 Covar12';
      noclass='Age';
```

```
        hdps='N';
        hdpswinfrom=.;
        hdpswinto=.;
        matchvars='';
        run;
%mend;


%psm (1,ischemic_stroke,typ_is,atyp_is);  /* Fill in label for analysis, group 1 name (exposure of interest), and group
3 name (reference group) */
%psm (2,intracranial_hemorrhage,typ_ich,atyp_ich); /* Fill in label for analysis, group 2 name (exposure of interest),
and group 4 name (reference group) */

%macro exportpsm(start,end);
        data out.&wpnum._psm;
            set %do i=&start. %to &end.;
                     psm&i.
                %end;
            ;
        run;
%mend;

%exportpsm(1,2);
```