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options notes nosource;
proc datasets lib=work nolist memtype=data kill; quit;
* macro to save output and log to appropriate areas ;
%_mprintto;
%put NOTE:
=====;
%put NOTE: Covance Study Number : 000000106324;
%put NOTE: Client Protocol ID : ZRHR-REXC-03-EU;
%put NOTE: Program Name : d_2ADQSSYM.sas;
%put NOTE: Purpose : create ADQSSYM dataset;
%put NOTE: ;
%put NOTE: Input Data : STDLIB.ADQSSYM SDTM.QS ADAM.ADSL;
%put NOTE: Output : ADAM.ADQSSYM;
%put NOTE: Macros Called : _MPRINTTO;
%put NOTE: ;
%put NOTE: Programmed by : cvn_smulholl;
%put NOTE: Creation Date : 2013-11-22;
%put NOTE: SAS Version : 9.3;
%put NOTE: ;
%put NOTE: == Latest Run
=====;
%put NOTE: Run by : &sysuserid;
%put NOTE: Date/Time :
%sysfunc(putn(%sysfunc(date()),e8601da.))T%sysfunc(putn(%sysfunc(time()),
e86011z.));
%put NOTE: ;
%put NOTE: == Modification History
=====;
%put NOTE: Date Initials No. Reason;
%put NOTE: 02Dec2013 SM 1) Amend window start for SA arm to
occur after Day 0 to use CC times on Day 0 and stop on Day 5;
%put NOTE: 01May2014 KB 2) Amended cough assessment pull out;
%put NOTE: 01May2014 KB 3) Added DEVN and DEVWC;
%put NOTE: 01May2014 KB 4) Amended spelling in mapping;
%put NOTE: 01May2014 KB 5) Amended format of PARCAT1;
%put NOTE: 01May2014 KB 6) Amended warning regarding AVALU;
%put NOTE: 04May2014 KB 7) Amended sorting by key variables;
%put NOTE: 07May2014 KB 8) Amended mapping;
%put NOTE: 07May2014 KB 9) Amended AWLO and AWHI;
%put NOTE: 07May2014 KB 10) Amended ANL01FL;
%put NOTE: 09May2014 KB 11) Amended AWHI for SA arm;
%put NOTE: 09May2014 KB 12) Removed code for setting ANL01FL to
blank if outside window;
%put NOTE: 12May2014 KB 13) Added formats for DEVN and AVISITN;
%put NOTE: 12May2014 KB 14) Added EPOCH;
%put NOTE: 12May2014 KB 15) Amended AWRANGE for spacing;
%put NOTE: 12May2014 KB 16) Set AWHI to 10 AM for day 6;
%put NOTE: 14May2014 KB 17) Amended AE0EFL to use last visit;
%put NOTE: 01Jun2014 KB 18) Removed extra space at the start of
AWRANGE;
%put NOTE: 02Jun2014 KB 19) Amended AWLO and AWRANGE to match
windows in SAP;
%put NOTE: 03Jun2014 KB 20) Amended AWHI for day 6 to be 06:30;

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%put NOTE: 27Jun2014    KB           21) Amended ANL01FL for subject 10
visit Day 0 due to data issue;
%put NOTE: 27Jul2014    KB           22) Added EXNOTRFL;
%put NOTE: ;
%put NOTE: ;
%put NOTE:
=====;
options notes source source2 nofullstimer validvarname=upcase missing='
';
ods _all_ close;
ods listing;

*=====;
* START OF PROGRAM CODE                                     ;
*=====;
*****;
* bring in ADSL ;
*****;

data adsl;
    set adam.adsl;
    keep studyid usubjid subjid: siteid age sex: race height weightb1
bmi ucpdgr1 ucpdgrln nicogr1 nicogrln targr1 targrln cobl
        enrfl scrffl complfl saffl fasfl pprotfl randfl trt: trt01:
trt01: dthfl enfl EXNOTRFL exfl fupfl; /* 22) KB 27Jul2014 */
run;

*****;
* bring in QS ;
*****;

data qs;
    set sdtm.qs(where = (qscat = /*'COUGH ASSESSMENT'*/'COUGH
ASSESSMENT QUESTIONNAIRE')); /* 2) KB 01May2014 */
    format paramcd $8. parcat1 /*$100.*/$200. avisit $40. paramn
parcatln 8. aval best. param $100. avalc $50. adt date9. /* 5) KB
01May2014 */
    adtm datetime13. atm time5. AVISITN BEST.; /* 13) KB 12May2014 */
    * parameter variables ;
    parcat1 = propcase(qscat);
    parcatln = 1;

    paramcd = qstestcd;
    param = propcase(qstest, '.');

    if qstestcd = 'COUGH24' then paramn = 1;
    else if qstestcd = 'COUIMP' then paramn = 2;
    else if qstestcd = 'COUINT' then paramn = 3;
    else if qstestcd = 'COURFEQ' then paramn = 4;
    else if qstestcd = 'COUSPUT' then paramn = 5;
    else if qstestcd = 'COUOTH' then paramn = 6;
    else put 'USER WARN' 'ING: check parameter names as paramn not
allocated:' qstestcd = ;

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* analysis variables ;
if qstestcd = 'COUINT' then do;
    if qsstresc='VERY MILD' then aval=1;
    if qsstresc='MILD' then aval=2;
    if qsstresc='MODERATE' then aval=3;
    if qsstresc='SEVERE' then aval=4;
    if qsstresc='VERY SEVERE' then aval=5;
end;
else if qstestcd = 'COURFEQ' then do;
    if qsstresc='RARELY' then aval=1;
    if qsstresc='SOMETIMES' then aval=2;
    if qsstresc='FAIRLY OFTEN' then aval=3;
    if qsstresc='OFTEN' then aval=4;
    if qsstresc='ALMOST ALWAYS' then aval=5;
end;
else if qstestcd = 'COUSPUT' then do;
    if qsstresc='NO SPUTUM' then aval=0;
    if qsstresc='A MODERATE AMOUNT OF SPUTUM' then aval=1;
/*
    if qsstresc='A LARGER AMOUNT OF SPUTUM' then aval=2;*/
    /*if qsstresc='A LARGER AMOUNT OF SPUTUM' then aval=2;*/ /*
4) KB 01May2014 */
    IF QSSTRESC='A LARGE AMOUNT OF SPUTUM' THEN AVAL=2; /* 8) KB
07May2014 */
    if qsstresc='A VERY LARGE AMOUNT OF SPUTUM' then aval=3;
end;
else aval = qsstresn;
avalc = propcase(qsstresc, '.');

* visit details ;
avisit = propcase(visit);
avisitn = visitnum;

* baseline flag;
ablfl = qsbflfl;

* dates;
length qsdtc1 $19.;
qsdtc1=qsdtc;
if length(qsdtc) gt 10 then do;
    adtm = input(qsdtc1,e8601dt.);
    adt = datepart(adtm);
    atm = timepart(adtm);
end;
else if length(qsdtc) = 10 then adt = input(qsdtc, yymmdd10.);

keep usubjid qsseq param: parcat: aval: ablfl avisit: adt: atm
qsstat qsreasnd qsdtc qsdyc EPOCH; /* 14) KB 12May2014 */
run;

proc sort data = qs;
    by usubjid paramn avisitn adtm;
run;

* end of exposure flag;

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proc sort data = qs out = eos/*(where = (not missing(avalc)))*/; /* 17)
KB 14May2014 */
    by usubjid paramn avisitn adtm; /* 17) KB 14May2014 */
run;

data eos2(keep = usubjid paramn avisitn /*aeoefl*/);
    set eos;
    by usubjid paramn AVISITN; /* 17) KB 14May2014 */
    format aeoefl $2.;
    if last.paramn AND LAST.AVISITN then do; /* 17) KB 14May2014 */
        aeoefl = 'Y';
        output;
    end;
run;

*merge back onto data;
data qs2;
    merge qs eos2;
    by usubjid paramn avisitn;
    format anl01fl $2.;

    * determine if any unscheduled;
    if index(lowercase(avisitn),'unscheduled') or paramcd = 'QSALL' then
anl01fl = ' ';
    else if last.avisitn and first.avisitn = 0 then anl01fl = ' ';
    ELSE IF PARAMCD NE 'COUGH24' AND QSSTAT='NOT DONE' THEN ANL01FL='';
/* 10) KB 07May2014 */
    else anl01fl = 'Y';
    if anl01fl = ' ' then put 'Check reason for exclusion from
analysis: ' usubjid = param = avisit = ;

    *IF AEOEFL='Y' AND QSSTAT EQ 'NOT DONE' THEN AEOEFL=''; /* 17) KB
14May2014 */
run;

*****;
* Combine ADSL and QS data *;
*****;
* treatment period;
%_mtotper;

data slqssym(drop = trt01: tr01: ablfl);
    merge adsl qs2(in = a);
    by usubjid;
    if a;          * only include subjects with data ;
    format aperiod trtan trtpn aday 8. trta trtp $40. aperiodc $10.;
    aday = adt - trtsdt + 1;
    * allocate treatment and period;
    %_mperall(dvar1 = adtm, dvar2 = adt);
    aperiodc = 'Period ' || put(aperiod,1.);
run;

*****;

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*Determine assessment window;
*****;

* pick up all doses;
data doses;
    set adam.addx(in = a where = (astday ge 0) DROP=AVALU) adam.adex(in
= b where = (astday ge 0) DROP=AVALU) adam.adsv(in = c where = (astday ge
0 /*and trta = 'SA'*/)); /* 1) SM 02Dec2013 */ /* 6) KB 01May2014 */
    format astm time5.;
    /* 1) RE-WRITTEN CODE TO GET CORRECT TIMES PER ARM SM 02Dec2013 */
    IF TRTA = 'SA' AND (1 LE ASTDAY LE 5) THEN ASTM =
/*'22:00'T*/*'06:30'T*/*'10:00'T; * NO PRODUCT SMOKED SO 10PM AT LATEST
; /* 9) KB 07May2014 */ /* 11) KB 09May2014 */
    ELSE IF ASTDAY = 6 THEN ASTM = '06:30'T; * NO PRODUCT
RECORDED AFTER DAY 5;
    else astm = timepart(astdtm);
    IF MISSING(ASTM) THEN DELETE; /* 1) SM 02Dec2013 */
    keep subjidn astday astm astdt;
run;

proc sort data=doses;
    by subjidn astday astm;
run;

/* 9) START KB 07May2014 */
DATA DOSES1;
    SET DOSES;
    BY SUBJIDN ASTDAY ASTM;

    IF FIRST.ASTDAY;
RUN;
/* 9) END KB 07May2014 */

data doses2;
    set /*doses*/DOSES1; /* 9) KB 07May2014 */
    by subjidn astday;
    format awrange $50. awhi AWLO time5.; /* 9) KB 07May2014 */
    if first.astday;

/* 9) START KB 07May2014 */
    AWLO=.'06:00'T*/*; /* 19) KB 02Jun2014 */
    IF ASTM>DHMS(0,10,0,0) THEN AWHI='10:00'T;
    ELSE AWHI=ASTM;
/* 9) END KB 07May2014 */
    IF ASTDAY=6 THEN AWHI=.'10:00'T*/*'06:30'T; /* 16) KB 12May2014 */ /*
20) KB 03Jun2014 */
    awrange = /*put(*/*astm*/*AWLO,time5.) ||*/ /*'-22:00'T*/*'-
'*/STRIP("<")||STRIP(PUT(AWHI,TIME5.)); * window from time of first
cigarette next day must be prior to 22:00; /* 9) KB 07May2014 */ /* 15)
KB 12May2014 */ /* 19) KB 02Jun2014 */
/*    awhi = '22:00't;*/ /* 9) KB 07May2014 */
    rename astday = aday /*astm = awlo*/; /* 9) KB 07May2014 */
run;

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proc sort data = doses2;
    by subjidn aday;
run;

proc sort data = slqssym out = qswind;
    by subjidn aday;
run;

data window;
    merge qswind(in = a) doses2(in = b);
    by subjidn aday;
    if a and b;
    /* 12) START KB 09May2014 */
    /*oldanl = anl01fl;*/
    /* if datepart(adtm) = astdt then do;*/ * make sure qs taken prior to
    first exposure on day;
    /* if*/ /*not*/ /*(atm lt awlo) then anl01fl = ' ' ;*/ /* 10) KB
    07May2014 */
    /* else if atm gt awhi then anl01fl = ' ' ;*/
    /* end;*/
    /**/
    /* if oldanl ne anl01fl then put 'USER WARN' 'ING: excluded from
    summaries as outside assessment window: ' subjidn = aday = adtm =
    awrange =;*/
    /**/
    /* 12) END KB 09May2014 */
    keep subjidn aday adtm awrange awlo awhi astdt anl01fl paramn ATM;
run;

* add back to data;
proc sort data = window;
    by subjidn aday paramn;
run;

proc sort data = slqssym;
    by subjidn aday paramn;
run;

data slqssym2;
    merge slqssym window(drop = astdt);
    by subjidn aday paramn;
run;

/* 3) START KB 01May2014 */
DATA SLQSSYM3;
    SET SLQSSYM2;
    FORMAT DEVWC $10. DEVN BEST.; /* 13) KB 12May2014 */

    IF QSSTAT NE 'NOT DONE' THEN DO;
        IF ATM<AWLO THEN DO;
            DEVN=FLOOR( (ATM-AWLO)/60);
            DEVWC=COMPRESS( PUT( FLOOR( (ATM-AWLO)/60), BEST.));
        END;
        ELSE IF ATM>AWHI THEN DO;

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        DEVN=CEIL( (ATM-AWHI)/60);
        DEVWC=COMPRESS(PUT(CEIL( (ATM-AWHI)/60),BEST.));
    END;
END;

IF NOT MISSING(DEVWC) THEN DO;
    IF INDEX(DEVWC,'-')=0 THEN DEVWC=CATS(CATS('+',DEVWC),' min');
    ELSE IF INDEX(DEVWC,'-') THEN DEVWC=CATS(DEVWC,' min');
END;

AWRANGE=STRIP(AWRANGE); /* 18) KB 01Jun2014 */

    IF SUBJIDN=10 AND AVISIT='Day 0' AND PARAMCD IN ('COUNT' 'COURFEQ'
'COUSPUT') THEN ANL01FL=''; /* 21) KB 27Jun2014 */
RUN;
/* 3) END KB 01May2014 */
*****;
* create output dataset ;
*****;

options replace;

data adqssym;
    set stdlib.adqssym /*slqssym2*/SLQSSYM3; /* 3) KB 01May2014 */
run;

proc sort data = adqssym out = adam.adqssym(label= 'Symptoms
Questionnaire Analysis Dataset');
/*    by usubjid avisitn parcatln paramn;*/
    BY USUBJID AVISITN paramcd; /* 7) KB 04May2014 */
run;

options noreplace;
proc printto; run;
*=====;
* END OF PROGRAM CODE ;
*=====;

```