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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 : 000000106326;
%put NOTE: Client Protocol ID : ZRHR-PK-05-JP;
%put NOTE: Program Name : d_2ADFA.sas;
%put NOTE: Purpose : create ADFA dataset;
%put NOTE: ;
%put NOTE: Input Data : STDLIB.ADFA SDTM.FA ADAM.ADSL
SDTM.SUPPFA;
%put NOTE: Output : ADAM.ADFA;
%put NOTE: Macros Called : _MPRINTTO _MTOTPER _MPERALL _SCRAMBLE;
%put NOTE: ;
%put NOTE: Programmed by : cvn_aobyrne;
%put NOTE: Creation Date : 2014-01-06;
%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: 11Jan2014 KB 1) Added warnings to catch FATESTCDs
and AVALCs;
%put NOTE: 11Jan2014 KB 2) Amended AVAL and AVALC to use
FAORRES;
%put NOTE: 11Jan2014 KB 3) Amended code to use SVDTC if FADTC
is missing;
%put NOTE: 11Jan2014 KB 4) Added AGEU to scramble macro;
%put NOTE: 11Jan2014 KB 5) Added FAREASND to keep statement;
%put NOTE: 11Jan2014 KB 6) Dropped FAOBJ and FACAT;
%put NOTE: 11Jan2014 KB 7) Amended FASCAT for SCRNBAN;
%put NOTE: 11Jan2014 KB 8) Added in NUMNRT and NUMSTIC PARAMs;
%put NOTE: 11Jan2014 KB 9) Amended proc sort by variables;
%put NOTE: 13Jan2014 KB 10) Amended PARAMCD=NICOTH;
%put NOTE: 14Jan2014 KB 11) Amended warning to catch AVALCs ;
%put NOTE: 14Jan2014 KB 12) Amended warning for dates that
cannot be mapped from SV or FA;
%put NOTE: 14Jan2014 KB 13) Amended PARAMNs for NDOSE and
NRTPERF;
%put NOTE: 14Apr2014 KB 14) Removed FAOBJ from drop statement
and removed SCRNBAN;
%put NOTE: 14Apr2014 KB 15) Given AVISITN a format;
%put NOTE: 14Apr2014 KB 16) Included SV dates if missing;
%put NOTE: 14Apr2014 KB 17) Amended PARAMCDs;

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%put NOTE: 14Apr2014    KB          18) Amended WILLABL PARAM to include NRT
gum;
%put NOTE: 14Apr2014    KB          19) Amended sorting by key variables;
%put NOTE: 14Apr2014    KB          20) Added TRTSTMF to scramble macro;
%put NOTE: 14Apr2014    KB          21) Added FASTAT and ADT2 to drop;
%put NOTE: 22Apr2014    KB          22) Amended PARAM for WILLABL;
%put NOTE: 05Aug2014    KB          23) Added EXNOTRFL and NICOGR2 to keep;
%put NOTE: 05Aug2014    KB          24) Amended format issue;
%put NOTE: 05Aug2014    KB          25) Added NUMGUM parameter;
%put NOTE: 05Aug2014    KB          26) Amended visit for merging;
%put NOTE: 05Aug2014    KB          27) Removed AGEU from keep;
%put NOTE: 07Aug2014    KB          28) Amended PARAMs;
%put NOTE: 21Sep2014    KB          29) Added BRAND;
%put NOTE: 21Sep2014    KB          30) Amended NUMSTIC PARAM;
%put NOTE: 23Sep2014    KB          31) Amended update 30;
%put NOTE:

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=====;
options notes source source2 nofullstimer validvarname=upcase missing='
';

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ods _all_ close;
ods listing;

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*=====;
* START OF PROGRAM CODE                                     ;
*=====;

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*****;
* bring in ADSL ;
*****;

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data adsl;
    set adam.adsl;
    keep studyid usubjid subjid: siteid age /*ageu*/ sex: race height
weightbl bmi ucpdgr1 ucpdgrln nicogr1 nicogrln NICOGR2 NICOGR2N targr1
targrln /* 23) KB 05Aug2014 */ /* 27) KB 05Aug2014 */
    enrfl scrffl complfl saffl pprotfl randfl trt: trt01: tr01:
tr02: trt02:
    dthfl enfl exfl fupfl anal: EXNOTRFL; /* 23) KB 05Aug2014 */
run;

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*****;
* bring in SUPPFA ;
*****;

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/* 29) START KB 21Sep2014 */
PROC TRANSPOSE DATA=SDTM.SUPPFA OUT=TSUPPFA(DROP = _:);
    BY USUBJID IDVARVAL;
    VAR QVAL;
    ID QNAM;
    IDLABEL QLABEL;
RUN;

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DATA SUPPFA;
    SET TSUPPFA;
    FASEQ = INPUT(IDVARVAL,BEST.);
RUN;

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PROC SORT DATA=SUPPFA;
    BY USUBJID FASEQ;
RUN;
/* 29) END KB 21Sep2014 */

*****;
* bring in FA    ;
*****;
proc sort data=sdtm.fa out=fa;
    by usubjid faseq;
run;

data fa2;
    /*merge*//*set*/MERGE fa SUPPFA; /* 29) KB 21Sep2014 */
    by usubjid faseq;
    format paramcd $8. parcat1 parcat2 avisit $40. paramn 8. aval best.
    avalc $200. param $200. avalu $20. adt date9.
    /*scrnbran $200.*/ AVISITN 8.; /* 15) KB 14Apr2014 */ /* 14)
KB 14Apr2014 */
    * parameter variables ;
/*    paramcd = fatestcd; */ /* 17) KB 14Apr2014 */
    if fatestcd = 'TYIELD' then do;
        PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
        paramn = 1;
        param = 'ISO Tar Yield ';
    end;
    else if fatestcd = 'NYIELD' then do;
        PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
        paramn = 2;
        param = 'ISO Nicotine Yield';
    end;
    else if fatestcd = 'COYIELD' then do;
        PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
        paramn = 3;
        param = 'ISO CO Yield';
    end;
    else if fatestcd = 'QUIT' then do;
        PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
        paramn = 4;
        param = 'Does the subject plan to quit smoking during the
next 3 months?';
    end;
    else if fatestcd = 'CONYR3' then do;
        PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
        paramn = 5;
        param = 'Did the subject smoke for at least 3 consecutive
years?';
    end;
    else if fatestcd = 'SMOKHIST' then do;
        PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
        paramn = 6;
        param = 'How many cigarettes per day has the subject smoked
on average during the last 4 weeks?';
    end;

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end;
else if fatestcd = 'WKMENT4' then do;
    PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
    paramn = 7;
    param = 'Did the subject smoke menthol cigarettes in the last
4 weeks?';
end;
else if fatestcd = 'NICOTH' then do;
    PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
    paramn = 8;
/*    param = 'The subject has used nicotine-containing products
other than commercially available CC (either tobacco-based products or
nicotine-replacement therapy [NRT]), electronic cigarettes and similar
devices, within 4 weeks prior to assessment.';*/
    PARAM = 'The subject has used nicotine-containing products
other than commercially available CC, electronic cigarettes and similar
devices, within 4 weeks prior to assessment.'; /* 10) KB 13Jan2014 */
end;
else if fatestcd = 'PERFORM' then do;
    PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
    paramn = 9;
    param = 'Was the THS 2.2 product trial performed?';
end;
else if fatestcd = 'WILLABL' then do;
/* 18) START KB 14Apr2014 */
    IF FACAT='NICOTINE REPLACEMENT THERAPY' THEN DO;
        PARAMCD='NRWILLAB';
        PARAMN=17;
/*        PARAM='Subject willing to use NRT gum in study?';*/
        PARAM='Is the subject willing and able to use the NRT gum product
during the study?'; /* 28) KB 07Aug2014 */
    END;
    ELSE DO;
/* 18) END KB 14Apr2014 */
        PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
        paramn = 10;
/*        param = 'Is the subject willing and able to use the product
during the study?';*/
        PARAM = 'Is the subject willing and able to use the THS
product during the study?'; /* 22) KB 22Apr2014 */
    end;
END; /* 18) KB 14Apr2014 */
/*    else if fatestcd = 'REASND' then do;*/
/*        paramn = 11;*/
/*        param = 'If the THS 2.2 product trial was not performed,
please explain';*/
/*    end;*/
    else if fatestcd = 'NRTPERF' then do;
        PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
        paramn = 11/*12*/; /* 13) KB 14Jan2014 */
        param = 'Was the NRT gum product trial performed?';
    end;
    else if fatestcd='NDOSE' then do;
        PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */

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        paramn = 12/*13*/; /* 13) KB 14Jan2014 */
        param = 'Nicotine Dosage';
    end;
/* 8) START KB 11Jan2014 */
    ELSE IF FATESTCD='NUMNRT' THEN DO;
        PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
        PARAMN=19;
        PARAM='How many NRT gum did the subject take?';
    END;
    ELSE IF FATESTCD='NUMSTIC' THEN DO;
        PARAMCD=FATESTCD; /* 17) KB 14Apr2014 */
        PARAMN=16;
/*      PARAM='How many THS 2.2M tobacco sticks used';*/
        PARAM=/'Number of THS 2.2M sticks used'/'/'Number of THS 2.2
menthol tobacco sticks used'/'/'How many THS 2.2 menthol tobacco sticks
used'; /* 28) KB 07Aug2014 */ /* 30) KB 21Sep2014 */ /* 31) KB
23Sep2014 */
    END;
/* 8) END KB 11Jan2014 */
/* 25) START KB 05Aug2014 */
    ELSE IF FATESTCD='NUMGUM' THEN DO;
        PARAMCD=FATESTCD;
        PARAMN=19;
        PARAM="Number of NRT gum used";
    END;
/* 25) END KB 05Aug2014 */
    ELSE PUT "WARN" "ING: More FATESTCDs to make PARAMs for " FATESTCD=;
/* 1) KB 11Jan2014 */

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        if not missing(facat) then parcat1 = trim(facat);
        else put 'USER WARN' 'ING:check missing facat: ' usubjid = param =
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        if not missing(fascap) then parcat2 = trim(fascap);
        else parcat2 = upcase(faobj);

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    * analysis variables ;
/* 2) START KB 11Jan2014 */
    IF NOT INDEX(FAORRES,'Yes') AND NOT INDEX(FAORRES,'No') AND NOT
INDEX(FAORRES,'<') AND NOT INDEX(FAORRES,'>')
    AND NOT INDEX(FAORRES, 'to') THEN DO;
        aval = /*fastresn*/INPUT(FAORRES,BEST.);
    END;
    avalc = left(trim(/*fastresc*/FAORRES));
/* 2) END KB 11Jan2014 */

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    * numeric values do not match character ;
/*      if not missing(fastresn) and fastresc ne put(fastresn,best.) then
avalc=strip(put(fastresn,best.));*/
    avalu = trim(faorresu);
    * code categorical values in aval ;
    if missing(aval) then do;
        if avalc = 'Yes' then aval = 1;
        else if avalc = 'No' then aval = 2;
        else if avalc = '<10' then aval = 3;

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        else if avalc = '10 to 19' then aval = 4;
        else if avalc = '>19' then aval = 5;
        ELSE IF NOT MISSING(AVALC) THEN PUT "WARN" "ING: More AVALCs to
make AVALs for " AVALC=; /* 1) KB 11Jan2014 */ /* 11) KB 14Jan2014 */
        end;

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

        * dates;
/* 3) START KB 11Jan2014 */
        IF NOT MISSING(FADTC) THEN DO;
            adt = input(fadtc, yymmdd10.);
        END;
/* 3) END KB 11Jan2014 */
        adtm = .; * set blank for period macro below;

        /* For finding the period below */
/*      if length(fadtc) gt 10 then astdtm = input(fadtc, e8601dt.); */
        IF LENGTH(FADTC) GT 10 THEN ASTDTM =
DHMS(INPUT(SCAN(FADTC, 1, 'T'), YMMDD10.), HOUR(INPUT(SCAN(FADTC, 2, 'T'), TIME
5.)), MINUTE(INPUT(SCAN(FADTC, 2, 'T'), TIME5.)), 0); /* 24) KB 05Aug2014 */
        if not missing(astdtm) then astdt = datepart(astdtm);
        else if length(fadtc) = 10 then astdt = input(fadtc, yymmdd10.);

/*      if facat in('NICOTINE REPLACEMENT THERAPY', 'CIGARETTE BRAND') then
scrnbran=faobj; */
/*      IF FASCAT IN ('NRT GUM BRAND' 'MENTHOL CIGARETTE BRAND') AND
FATESTCD IN ('NDOSE' 'NYIELD' 'TYIELD') THEN SCRNBAN=FAOBJ; */ /* 7)
KB 11Jan2014 */ /* 14) KB 14Apr2014 */

        keep usubjid facat faobj /*scrnbran*/ faseq paramcd param paramn
parcat: aval: visit visitnum avisit: fadtc fady adt adtm epoch astdt
FAREASND FASTAT BRAND; /* 5) KB 11Jan2014 */ /* 14) KB 14Apr2014 */ /*
16) KB 14Apr2014 */ /* 29) KB 21Sep2014 */
run;

/* 26) START KB 05Aug2014 */
DATA FA2TEST;
    SET FA2;
    LENGTH VISIT2 $15;

    VISIT2=VISIT;
    DROP VISIT;
    RENAME VISIT2=VISIT;
RUN;
/* 26) END KB 05Aug2014 */

/* 3) START KB 11Jan2014 */
PROC SORT DATA=SDTM.SV OUT=SV(KEEP=USUBJID VISIT SVSTDTC);
    BY USUBJID VISIT;
RUN;

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PROC SORT DATA=/*FA2*/FA2TEST; /* 26) KB 05Aug2014 */
  BY USUBJID VISIT;
RUN;

DATA FA3;
  MERGE /*FA2*/FA2TEST(IN=A) SV; /* 26) KB 05Aug2014 */
  BY USUBJID VISIT;
  IF A;

  IF MISSING(ADT) THEN DO;
    ADT=INPUT(SVSTDTC,YYMMDD10.);
  END;
  IF MISSING(ADT) AND FAREASND='' /*MISSING(SVSTDTC)*/ THEN PUT "WARN"
"ING: Subject is missing date in FA and in SV " USUBJID=; /* 12) KB
14Jan2014 */

  DROP SVSTDTC;
RUN;
/* 3) END KB 11Jan2014 */

*****;
* Combine ADSL and FA data *;
*****;
* treatment period;
*_mtotper;

data slfa(drop = trt01: tr01: trt02: tr02: adtm visit: astday astdt
aperiod aperiodc trtp trtpn trta trtan);
  merge adsl /*fa2*/FA3(in = a); /* 3) KB 11Jan2014 */
  by usubjid;
  if a;          * only include subjects with FA data ;
  format aperiod trtan trtpn aday 8. trta trtp $40. aperiodc $8.;
  aday = adt - trtsdt + 1;
  astday = astdt - trtsdt + 1;
  * allocate tretament and period;
  if astday in (0 1) then aperiod=1;
  else if astday in (2 3) then aperiod=2;
  *_mperall(dvar1 = adtm, dvar2 = adt);

  if not missing(aperiod) then do;
    aperiodc = 'period ' || put(aperiod,1.);
  end;

  DROP /*FAOBJ*/ FACAT; /* 6) KB 11Jan2014 */ /* 14) KB 14Apr2014 */
run;

/* 16) START KB 14Apr2014 */
DATA SVDATES;
  SET SDTM.SV(WHERE=(VISIT IN ('SCREENING' 'DAY -1')));
  FORMAT ADT2 DATE9.;

  ADT2=INPUT(SVSTDTC,YYMMDD10.);

  AVISIT=PROPCASE(VISIT);

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        KEEP USUBJID AVISIT ADT2;
RUN;

PROC SORT DATA=SLFA;
    BY USUBJID AVISIT;
RUN;

PROC SORT DATA=SVDATES;
    BY USUBJID AVISIT;
RUN;

DATA SLFA2;
    MERGE SLFA(IN=A) SVDATES;
    BY USUBJID AVISIT;
    IF A;

    IF ADT=. AND FASTAT NE 'NOT DONE' AND FADTC='' THEN ADT=ADT2;
RUN;
/* 16) END KB 14Apr2014 */

*****;
* create output dataset ;
*****;

options replace;

data adfa;
    set stdlib.adfa /*slfa*/SLFA2; /* 16) KB 14Apr2014 */
    DROP ADT2 FASTAT; /* 21) KB 14Apr2014 */
run;

proc sort data = adfa out = adam.adfa(label= 'Findings About Events or
Interventions Analysis Dataset');
    by usubjid AVISITN /*PARAMN*/ paramcd; /* 9) KB 11Jan2014 */ /*
19) KB 14Apr2014 */
run;

options noreplace;

%_scramble(set=adfa, id=usubjid subjid subjidn age /*AGEU*/ sex sexc sexn
race dthfl height weightbl bmi ucpdgr1 ucpdgrln nicogr1 /* 4) KB
11Jan2014 */ /* 27) KB 05Aug2014 */
        nicogrln targr1 targrln analgr1 analgrln, dates=adt
trtsdtm trtsdt trtsday trtedtm trtedt trteday,
        nullc=parcat1 parcat2 avalc fadtc trtseqp trtseqa
TRTSTMF, /* 20) KB 14Apr2014 */
        nulln=aval fady aday trtseqpn trtseqan, nullcc=/*6*/7,
nullnc=5); /* 20) KB 14Apr2014 */

proc printto; run;
*=====;

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```
* END OF PROGRAM CODE ;  
*=====;
```