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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   : ZRHM-PK-05-JP;
%put NOTE: Program Name        : d_2ADPP.sas;
%put NOTE: Purpose              : create ADPP dataset;
%put NOTE: ;
%put NOTE: Input Data           : STDLIB.ADPP SDTM.PP SDTM.SUPPPP
ADAM.ADSL;
%put NOTE: Output               : ADAM.ADPP;
%put NOTE: Macros Called        : _MPRINTTO ;
%put NOTE: ;
%put NOTE: Programmed by        : cvn_kbooth;
%put NOTE: Creation Date        : 2014-04-22;
%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: 24Apr2014  KB        1) Added TRTSTMF TR01STMF and TR02STMF
to scramble macro;
%put NOTE: 03Jun2014  SM        2) Amend code to include updated PP and
SUPPPP data;
%put NOTE:           3) add a format to ANL02FL;
%put NOTE: 04Jun2014  SM        4) Amend code for half life flag
CRIT2FL;
%put NOTE:           5) Include PCTCMAX with CMAX for
ANL02FL;;
%put NOTE: 07Aug2014  KB        6) Amended CRIT1FL;
%put NOTE: 07Aug2014  KB        7) Amended for AVAL/AVALC issue;
%put NOTE: 07Aug2014  KB        8) Amended issue with overwriting;
%put NOTE: 07Aug2014  KB        9) Removed parameters in line with
PK02;
%put NOTE: 08Aug2014  KB        10) Removed put from AVALC;
%put NOTE: 08Aug2014  KB        11) Amended length warnings in log;
%put NOTE: 23Sep2014  KB        12) Amended subject 129s AUC0-12 result
to flag for CRIT5;
%put NOTE: 23Sep2014  KB        13) Amended update 12 to add in product
use;
%put NOTE: 23Sep2014  KB        14) Added a format to PARAMN;
%put NOTE: ;
%put NOTE:
=====;

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options notes source source2 nofullstimer validvarname=upcase missing='
';
ods _all_ close;
ods listing;

*=====;
* START OF PROGRAM CODE                                     ;
*=====;
* supplemental data;
data supppp(drop=studyid);
    set sdtm.supppp;
    LENGTH Pptestcd $7 Pptest $29; /* 11) KB 08Aug2014 */
    IF IDVAR='PPGRP' THEN PPGRPID=IDVARVAL; /* 2) SM 03Jun2014 */
    ELSE IF IDVAR='PPSEQ' THEN PPSEQ=INPUT(IDVARVAL,BEST.); /* 2) SM
03Jun2014 */
    /* 11) START KB 08Aug2014 */
    Pptestcd=Qnam;
    Pptest=Qval;
    /* 11) END KB 08Aug2014 */
    *rename idvarval=ppgrpid; /* 2) SM 03Jun2014 */
run;

proc transpose data=supppp(WHERE=(IDVAR='PPGRP')) out=tsupppp(drop=_:
pctcmax);
    var qval;
    by usubjid ppgrpid;
    id qnam;
    idlabel qlabel;
run;

proc sort data=tsupppp;
    by usubjid ppgrpid;
run;

proc sort data=sdtm.pp out=pp;
    by usubjid ppgrpid;
run;

* pp data;
data pp2;
    merge pp tsupppp;
    by usubjid ppgrpid;
run;

/* NEW BLOCK OF CODE 2) SM 03Jun2014 */
PROC SORT DATA=SUPPPP;
    BY USUBJID PPSEQ;
RUN;

PROC TRANSPOSE DATA=SUPPPP(WHERE=(IDVAR='PPSEQ')) OUT=TSUPPPPS;
    VAR QVAL;
    BY USUBJID PPSEQ;
    ID QNAM;
    IDLABEL QLABEL;

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RUN;

PROC SORT DATA=TSUPPPPS;
  BY USUBJID PPSEQ;
RUN;

PROC SORT DATA=PP2;
  BY USUBJID PPSEQ;
RUN;

* PP DATA;
DATA PP2A;
  MERGE PP2 TSUPPPPS;
  BY USUBJID PPSEQ;
RUN;

/* END OF NEW BLOCK 2) SM 03Jun2014 */

data pp3;
  set pp2A supppp(where=(pptestcd='PCTCMAX') rename=(*qnam=pptestcd
qlabel=pptest*/ qval=ppstresc)); /* 2) SM 03Jun2014 */ /* 11) KB
08Aug2014 */
  by usubjid ;
  if pptestcd='PCTCMAX' then ppstresu='%';
  drop studyid domain;
run;

* prepare for adam;
data pp3a NUMPOINT(WHERE=(PPTTESTCD IN ('LAMZNPT' 'LAMZNPT12'))
KEEP=USUBJID PPSTRESN PPTTESTCD PPENINT PPSTINT PPGRPID); /* 2) SM
03Jun2014 */
  set pp3;
  format paramcd $8. aval /*best.*/BEST32. avalc $200. avalu $20. param
$40. PARAMN 8.; /* 7) KB 07Aug2014 */ /* 14) KB 23Sep2014 */
  paramcd=pptestcd;
/*   aval=ppstresn;*/ /* 7) KB 07Aug2014 */
/*   if paramcd='PCTCMAX' then aval=input(ppstresc,best.); */ /* 7) KB
07Aug2014 */
  avalc=/*ppstresc*/STRIP(/*PUT(/*PPSTRESC/*,BEST32.)*/*); /* 7) KB
07Aug2014 */ /* 10) KB 08Aug2014 */
  AVAL=INPUT(AVALC,BEST32.); /* 7) KB 07Aug2014 */
  avalu=ppstresu;
  if paramcd='CMAX' then do;
    paramn=1;
    param='Cmax ('||trim(ppstresu)||)';
  end;
  else if paramcd='AUCLST' then do;
    paramn=2;
    param='AUC(0-last) ('||trim(ppstresu)||)';
  end;
  else if paramcd='AUCINT' AND (MISSING(PPENINT) AND MISSING(PPSTINT))
then do; /* 2) SM 03Jun2014 */
    paramn=5;
    param="AUC(0-t) ("||trim(ppstresu)||)";

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end;
else if paramcd='AUCPEO' then do;
    paramn=4;
    param='%AUCextrap (||trim(ppstresu)||)';
end;
else if paramcd='CLST' then do;
    paramn=10;
    param='Clast (||trim(ppstresu)||)';
end;
else if paramcd='TMAX' then do;
    paramn=6;
    param='Tmax (||trim(ppstresu)||)';
end;
else if paramcd='TLST' then do;
    paramn=7;
    param='Tlast (||trim(ppstresu)||)';
end;
else if paramcd='LAMZ' AND (MISSING(PPENINT) AND MISSING(PPSTINT))
then do; /* 2) SM 03Jun2014 */
    paramn=9;
    param='lambdaz (||trim(ppstresu)||)';
end;
else if paramcd='AUCIFO' then do;
    paramn=3;
    param='AUC(0-inf) (||trim(ppstresu)||)';
end;
else if paramcd='LAMZHL' AND (MISSING(PPENINT) AND MISSING(PPSTINT))
then do; /* 2) SM 03Jun2014 */
    paramn=8;
    param='t1/2 (||trim(ppstresu)||)';
end;
else if paramcd='LAMZLL' AND (MISSING(PPENINT) AND MISSING(PPSTINT))
then do; /* 2) SM 03Jun2014 */
    paramn=11;
    param='lambdaz low (||trim(ppstresu)||)';
end;
else if paramcd='LAMZNPT' AND (MISSING(PPENINT) AND MISSING(PPSTINT))
then do; /* 2) SM 03Jun2014 */
    paramn=13;
    param='lambdaz N ';
end;
else if paramcd='LAMZUL' AND (MISSING(PPENINT) AND MISSING(PPSTINT))
then do; /* 2) SM 03Jun2014 */
    paramn=12;
    param='lambdaz upper (||trim(ppstresu)||)';
end;
else if paramcd='R2ADJ' AND (MISSING(PPENINT) AND MISSING(PPSTINT))
then do; /* 2) SM 03Jun2014 */
    paramn=14;
    param='R2 adjusted';
end;
else if paramcd='PCTCMAX' then do;
    paramn=15;
    param='Percentage of T0 relative to Cmax (||trim(ppstresu)||)';

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        end;
/* NEW BLOCK 2) SM 03Jun2014 */
        ELSE IF PARAMCD='AUCINT' AND (NOT MISSING(PPENINT) AND NOT
MISSING(PPSTINT)) THEN DO;
            PARAMCD='AUCINT12';
            PARAM="AUC(0-12) ('||TRIM(PPSTRESU)||')";
            PARAMN=16;
        END;
        ELSE IF PARAMCD='LAMZ' AND (NOT MISSING(PPENINT) AND NOT
MISSING(PPSTINT)) THEN DO;
            PARAMCD='LAMZ12';
            PARAM='lambdaz (0-12) ('||TRIM(PPSTRESU)||')';
            PARAMN=17;
        END;
        ELSE IF PARAMCD='LAMZHL' AND (NOT MISSING(PPENINT) AND NOT
MISSING(PPSTINT)) THEN DO;
            PARAMCD='LAMZHL12';
            PARAM="t1/2 (0-12) ('||TRIM(PPSTRESU)||')";
            PARAMN=18;
        END;
        ELSE IF PARAMCD='LAMZLL' AND (NOT MISSING(PPENINT) AND NOT
MISSING(PPSTINT)) THEN DO;
            PARAMCD='LAMZLL12';
            PARAM="lambdaz low (0-12) ('||TRIM(PPSTRESU)||')";
            PARAMN=19;
        END;
        ELSE IF PARAMCD='LAMZNPT' AND (NOT MISSING(PPENINT) AND NOT
MISSING(PPSTINT)) THEN DO;
            PARAMCD='LAMZNP12';
            PARAM='lambdaz N (0-12) ';
            PARAMN=20;
        END;
        ELSE IF PARAMCD='LAMZUL' AND (NOT MISSING(PPENINT) AND NOT
MISSING(PPSTINT)) THEN DO;
            PARAMCD='LAMZUL12';
            PARAM='lambdaz upper (0-12) ('||TRIM(PPSTRESU)||')';
            PARAMN=21;
        END;
        ELSE IF PARAMCD='R2ADJ' AND (NOT MISSING(PPENINT) AND NOT
MISSING(PPSTINT)) THEN DO;
            PARAMCD='R2ADJ12';
            PARAM='R2 adjusted (0-12)';
            PARAMN=22;
        END;

/* END OF BLOCK 2) SM 03Jun2014 */
        else put 'USER WARN' 'ING: unexpected parameter: ' paramcd;
        IF INDEX(PARAM,'( )') THEN PARAM=TRANWRD(PARAM,'( )',' '); /* 2) SM
03Jun2014 */
/* NEW BLOCK 2) SM 03Jun2014 */
        IF PPSTRESU='' THEN DO;
            IF PARAMCD IN ('AUCIFO' 'AUCINT' 'AUCINT12' 'AUCLST') THEN
PARAM=STRIP(PARAM)||' '||STRIP('(h*ng/mL)');

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        ELSE IF PARAMCD IN ('AUCPEO' 'PCTMAX') THEN PARAM=STRIP(PARAM)||'
'||STRIP('%');
        ELSE IF PARAMCD IN ('CLST' 'CMAX') THEN PARAM=STRIP(PARAM)||'
'||STRIP('ng/mL');
        ELSE IF PARAMCD IN ('LAMZ' 'LAMZ12') THEN PARAM=STRIP(PARAM)||'
'||STRIP('/h');
        ELSE IF PARAMCD IN ('LAMZHL' 'LAMZHL12' 'LAMZLL' 'LAMZLL12'
'LAMZUL' 'LAMZUL12') THEN PARAM=STRIP(PARAM)||' ||STRIP('h');
        ELSE IF PARAMCD IN ('TMAX') THEN PARAM=STRIP(PARAM)||'
'||STRIP('min');
        else if paramcd not in ('LAMZNPT' 'LAMZNP12' 'R2ADJ' 'R2ADJ12')
then put 'USER WARN' 'ING: unexpected parameter: ' paramcd=; /* 2) SM
29May2014 */
        END;
/*END OF NEW BLOCK 2) SM 03Jun2014 */
run;

PROC SORT DATA=NUMPOINT; /* 2) SM 03Jun2014 */
    BY USUBJID PPGRPID PPSTINT PPENINT;
RUN;

PROC SORT DATA=PP3A; /* 2) SM 03Jun2014 */
    BY USUBJID PPGRPID PPSTINT PPENINT;
RUN;

data pp4;
    /*set*/ MERGE pp3a NUMPOINT(RENAME=(PPSTRESN=NUMPOINT))
DROP=PTESTCD); /* 2) SM 03Jun2014 */
    BY USUBJID PPGRPID PPSTINT PPENINT; /* 2) SM 03Jun2014 */
    format crit1 crit2 crit3 crit4 crit5 CRIT6 CRIT7 $200. crit1fl
crit2fl crit3fl crit4fl crit5fl CRIT6FL CRIT7FL anl01fl ANL02FL $2.; /*
3) SM 03Jun2014 */
    crit1='AUC(0-inf) percentage extrapolation >20%';
    crit2='Apparent terminal half-life calculated over < 2 half-lives';
    crit3='Apparent terminal half-life calculated over < 1.5 half-lives';
    crit4='T0 > 5% of Cmax';
    crit5='Apparent terminal half-life R-squared value < 0.7';
    CRIT6='T0 concentration missing'; /* 2) SM 03Jun2014 */
    CRIT7='Potentially unreliable PK parameters due to missing
bioanalytical results'; /* 2) SM 03Jun2014 */
    If not missing(aucflg) and paramcd/*=*/ IN ('AUCPEO' 'AUCIFO') then
crit1fl='Y'; /* 6) KB 07Aug2014 */
    If not missing(hlflg) and paramcd in ('LAMZ' 'LAMZHL') then
crit2fl='Y';
    If not missing(hlflg12) and paramcd in ('LAMZ12' 'LAMZHL12') then
crit2fl='Y'; /* 4) SM 04Jun2014 */
    If not missing(/*hlflgexc*/HLFLGE) and paramcd in ('AUCIFO' 'AUCPEO'
'LAMZ' 'R2ADJ' 'LAMZNPT' 'LAMZUL' 'LAMZLL' 'LAMZHL' ) then crit3fl='Y';
/* 2) SM 03Jun2014 */
    IF NOT MISSING(HLFLGE12) AND PARAMCD IN ('LAMZ12' 'LAMZHL12'
'AUCIFO12' 'AUCPEO12' 'R2ADJ12' 'LAMZNP12' 'LAMZLL12' 'LAMZUL12') THEN
CRIT3FL='Y'; /* 2) SM 03Jun2014 */

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    If not missing(flgcmax) and paramcd='CMAX' then crit4fl='Y'; /* 2) SM
03Jun2014 */
    IF NUMPOINT=0 AND PARAMCD IN ('AUCIFO' 'AUCPEO' 'LAMZ' 'R2ADJ'
'LAMZUL' 'LAMZLL' 'LAMZHL' 'LAMZ12' 'LAMZHL12' /*'AUCIFO12' 'AUCPEO12'*/
'R2ADJ12' 'LAMZLL12' 'LAMZUL12') THEN CRIT5FL='Y'; /* 2) SM 03Jun2014 */
/* 9) KB 07Aug2014 */
    IF MZFLG='TRUE' THEN CRIT6FL='Y'; /* 2) SM 03Jun2014 */
    *from pk handover document v2.0;
    if crit3fl='Y' then DO; /* 2) SM 03Jun2014 */
        anl01fl=' ';
        ANL02FL=' ';
    END; /* 2) SM 03Jun2014 */
    ELSE IF USUBJID='ZRHM-PK-05-JP-AGE-0107' THEN DO; /* 2) SM 03Jun2014
*/
        ANL01FL=' ';
        IF PARAMCD IN ('CMAX' 'TMAX' 'AUCINT' 'PCTCMAX') THEN
ANL02FL='Y'; /* 5) SM 03Jun2014 */
        ELSE ANL02FL=' ';
    END; /* 2) SM 03Jun2014 */
    else DO; /* 2) SM 03Jun2014 */
        anl01fl='Y';
        ANL02FL='Y';
    END; /* 2) SM 03Jun2014 */

/* 12) START KB 23Sep2014 */
/*Study specific code from PK handover v 3.0*/
IF USUBJID='ZRHM-PK-05-JP-AGE-0129' AND PPGRPID='DAY_3' THEN DO; /*
13) KB 23Sep2014 */
    IF PARAMCD='AUCINT12' THEN CRIT5FL='Y';
    END;
/* 12) EMD KB 23Sep2014 */
run;

data pp5;
    set pp4;
    format avisit $40. aperiodc $8. avisitn aperiod 8.;
    if ppgrpid='DAY_1' then do;
        avisit='Day 1';
        avisitn=101;
        aperiod=1;
        aperiodc='Period 1';
    end;
    if ppgrpid='DAY_3' then do;
        avisit='Day 3';
        avisitn=103;
        aperiod=2;
        aperiodc='Period 2';
    end;
run;

* merge with adsl;
data adpp;
    merge pp5(in=a) adam.adsl;
    by usubjid;

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    if a;
    format trtp trta $40. trtpn trtan 8.;
    if avisit='Day 1' then do;
        trtp=trt01p;
        trta=trt01a;
        trtpn=trt01pn;
        trtan=trt01an;
    end;
    if avisit='Day 3' then do;
        trtp=trt02p;
        trta=trt02a;
        trtpn=trt02pn;
        trtan=trt02an;
    end;
    *EXCLUDE FROM SUMMARIES OF NOT IN PK POPULATION;
    IF ANL01FL='Y' AND PPROTFL='N' THEN ANL01FL=' ';      /* 2) SM
03Jun2014 */
run;

/* 7) START KB 07Aug2014 */
DATA CHECK;
    SET ADPP;
    WHERE NOT MISSING(AVAL) AND AVAL NE INPUT(AVALC, BEST32.);
RUN;
/* 7) END KB 07Aug2014 */

proc sql noprint;
    select name into: keepvars separated by " " from sashelp.vcolumn
    where libname = "STDLIB" and memname = "ADPP";
quit;

options replace;

data /*adpp*/ADPP2; /* 8) KB 07Aug2014 */
    set stdlib.adpp adpp;
    keep &keepvars;
run;

proc sort data = /*adpp*/ADPP2 out = adam.adpp(label= 'PK Parameters
Analysis Dataset'); /* 8) KB 07Aug2014 */
    by usubjid aperiod avisitn paramcd;
run;

options noreplace;

%_scramble(set=adpp, id=usubjid subjid subjidn age sex sexc sexn race
dthfl height weightbl bmi ucpdgr1 ucpdgrln nicogr1
    nicogrln targr1 targrln analgr1 analgrln,
    dates=avisit avisitn aperiod aperiodc,
    nullc=compl0fl compl1fl compl2fl compl3fl trtp trta trtseqp
trtsega TRTSTMF TR01STMF TR02STMF, /* 1) KB 24Apr2014 */
    nulln= trtsdtm trtsdt trtsday trtedtm trtedt trteday tr01sdt
tr01stm tr01sdtm tr01edt tr01etm tr01edtm tr02sdt tr02stm tr02sdtm

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tr02edt tr02etm tr02edtm trtseqpn trtseqan trtpn trtan,  
nullcc=/*8*/11, nullnc=22); /* 1) KB 24Apr2014 */  
  
proc printto; run;  
*=====;  
* END OF PROGRAM CODE;  
*=====;
```