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%_mprintto;
options notes nosource;
proc datasets lib=work nolist memtype=data kill; quit;
%put NOTE:
=====;
%put NOTE: Covance Study Number : 000000106326;
%put NOTE: Client Protocol ID   : ZRHM-PK-05-JP;
%put NOTE: Program Name        : t_nic3.sas;
%put NOTE: Purpose              : table of PK parameters of Nicotine by
nicotine level;
%put NOTE: ;
%put NOTE: Input Data           : ADAM.ADSL ADAM.ADPP;
%put NOTE: Output               : t_15_2_4_5_2(nic);
%put NOTE: Macros Called        : _MPRINTTO;
%put NOTE: ;
%put NOTE: Programmed by        : cvn_aobyrne;
%put NOTE: Creation Date        : 2014-08-11;
%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: 11Aug2014  JMH        1)  Removed dataset ADPP2;
%put NOTE: 23Sep2014  JR         2)  Amended data selection and checked
missing;
%put NOTE:
=====;
options notes source source2 nofullstimer validvarname=upcase missing='
';
ods _all_ close;
ods listing;

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

%let tflno=T_15_02_04_05_02(nic);

%let TFL_Part=%scan(&_SASPROGRAMFILE,-3,%str(/));

data _null_;
  tmp="%TFL_Part";
  if tmp not in ("dev" "qc") then call symput("TFL_Part", "prod");
  call symput('TFLpath', compress("&_SASPROGRAMFILE", ""));
run;

*****;

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* read in data ;
*****;

/*Use ADSL to get N values for column headers*/
data adsl;
    set adam.adsl(where=(pprotfl='Y'));
    if analgrln=1 then do;
        if index(trt01a,'THS 2.2') or index(trt02a,'THS 2.2') then
trtord=1;
        output;
        if index(trt01a,'mCC') or index(trt02a,'mCC') then trtord=2;
        output;
    end;
    else if analgrln=2 then do;
        if index(trt01a,'THS 2.2') or index(trt02a,'THS 2.2') then
trtord=10;
        output;
        if index(trt01a,'NRT') or index(trt02a,'NRT') then trtord=7;
        output;
    end;
    else if missing(analgrln) then delete;
run;

proc sort data=adsl nodupkey out=adsl1;
    by analgrln analgr1 trtord nicogrln nicogr1 subjid;
run;

proc freq data=adsl1(where=(not missing(trtord))) noprint;
    table analgrln*analgr1*trtord*nicogrln*nicogr1/ out
=tot(drop=percent rename=(count=total));
run;

data tot2;
    set tot;
    call
symput('gender' || strip(put(trtord,best.)) || strip(put(nicogrln,best.)), str
ip(put(total,best.)));
run;

proc freq data=adsl1(where=(not missing(trtord))) noprint;
    table analgrln*analgr1*trtord/ out =tottrt(drop=percent
rename=(count=total));
run;

data tottrt2;
    set tottrt;
    call symput('trt' || strip(put(trtord,best.)), strip(put(total,best.)));
run;

/*Bring in appropriate data from ADpp*/
data adpp;
    set adam.adpp;

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        where paramn in(1 2 3 4 5 6 7 8 9)and pprotfl='Y' and anl01fl='Y'
AND PPSTAT NE 'NOT DONE'; /* 2) JR 23Sep2014 */
run;

data supppp;
    set sdtm.supppp(where=(idvar='PPGRPID' and qnam='HLFLGE' and
qval='1'));
    format avisit $40.;

    if idvarval='DAY_1' then avisit='Day 1';
    else if idvarval='DAY_3' then avisit='Day 3';
        usubjid2=put(usubjid,$22.);
        drop usubjid;
        rename usubjid2=usubjid;
        keep usubjid2 qval avisit;
run;

proc sort data=adpp;
    by usubjid avisit;
run;

/*data adpp2;*/ /* 1) JMH 11Aug2014 */
/*    merge adpp(in=a) supppp;*/
/*    by usubjid avisit;*/
/*    if a;*/
/**/
/*    if qval='1' and paramn in (3 4 8 9) then delete;*/
/**/
/*run;*/

data adpp_orig;
    set ADPP /*adpp2*/; /* 1) JMH 11Aug2014 */

    if analgrln=2 and trtan=4 then trtord=10;
    else trtord=trtan;

    statval=aval;
run;

proc sort data=adpp_orig nodupkey out=gender;
    by usubjid analgrln trtord nicogrln nicogr1;
run;

proc freq data=gender noprint;
    tables analgrln*trtord*nicogrln*nicogr1 / out=totals;
run;

proc sort data=adpp_orig;
    by analgrln analgr1 trtord trta paramn param nicogrln nicogr1;
run;

proc means data=adpp_orig noprint;
    var statval;

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    by analgrln analgrl trtord trta TRTAN paramn param nicogrln
nicogrln; /* 7) AOB 17Jun2014 */
    output out=results01 n=n1 NMISS=MISS1 mean=mean1 std=std1
median=median1 min=min1 max=max1 q1=q1 q3=q3; /* 2) JR 23Sep2014 */
run;

data results02;
    set results01;
    attrib meansd minmax n median quart length=$20.;

    n = left(compress(put(n1,8.)));
    if not missing(median1) then median =
left(compress(put(median1,8.2)));
    if not missing(mean1) and not missing(std1) then meansd =
left(compress(put(round(mean1,0.01),8.2))) || ' (' ||
left(compress(put(0.001*ceil(std1/0.001),8.3))) || ')';
    if not missing(min1) and not missing(max1) then minmax =
left(compress(put(min1,8.1))) || ', ' || left(compress(put(max1,8.1)));
    if not missing(q1) and not missing(q3) then quart =
strip(strip(put(0.01*floor(q1/0.01),8.2)) || ', ' ||
strip(put(0.01*ceil(q3/0.01),8.2)));

    drop n1 mean1 std1 median1 min1 max1 q1 q3;
run;

/*Obtain the geometric mean*/

data gmean;
    set adpp_orig;
    statvall=statval;
    ln_statvall=log(statvall);
run;

proc means data=gmean noprint;
    output out=gmean1 mean=mean std=std1 lclm=lci1 uclm=uci1;
    var ln_statvall;
    by analgrln analgrl trtord trta paramn param nicogrln nicogrln;
run;

data gmean2;
    set gmean1;
    gmean1=exp(mean);

    gmean=left(compress(put(gmean1,8.2)));
    gcv=compress(put(0.01*ceil((sqrt(exp(std1*std1)-
1)*100)/0.01),8.2));
    gcv1=sqrt(exp(std1*std1)-1)*100;

    glci=exp(lci1);
    guci=exp(uci1);

    keep analgrln analgrl trtord trta paramn param gmean gcv glci guci std1
nicogrln nicogrln;
run;

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/*Combine the gmean and BLQ with other stats*/

data results03; /*Create text as required in output*/
  merge results02 gmean2;
  by analgrln analgrl trtord trta paramn param nicogrln nicogr1;
  attrib gmeancv length=$20.;
  if analgrln=2 and trtan=4 then trtan=10;
  /*Gmean(CV)*/
  if not missing(gcv) then gmeancv=left(compress(gmean)|| ' (' ||
compress(gcv))||'%)';
  else gmeancv=left(trim(gmean));

  if not missing(glci) and not missing(guci) then ci =
strip(strip(put(0.01*floor(glci/0.01),8.2)) || ', ' ||
strip(put(0.01*ceil(guci/0.01),8.2)));
  trtans=strip(strip(put(trtord,best.) ||
(strip(put(nicogrln,best.)))));

run;

proc sort data=results03;
  by analgrln analgr1 paramn param;
run;

proc transpose data=results03 out=results04 prefix=_ name=varname;
  by analgrln analgr1 paramn param;
  var n meansd median minmax ci quart gmeancv;
  id trtans;
  idlabel trta;
run;

data results05;
  set results04;
  attrib stat length = $100.;

  if varname='N' then do;
    statord=1;
    stat='n';
  end;

  else if varname='GMEANCV' then do;
    statord=3;
    stat='Geometric Mean (CV%)';
  end;

  else if varname='CI' then do;
    statord=4;
    stat='95% CI';
  end;

  else if varname='MEDIAN' then do;
    statord=5;
    stat='Median';
  end;

  else if varname='QUART' then do;
    statord=6;

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        stat='Q25, Q75';
    end;
    else if varname='MINMAX' then do;
        statord=7;
        stat='Min, Max';
    end;
    else if varname='MEANSD' then do;
        statord=8;
        stat='Mean (SD)';
    end;
    drop varname;
run;

data results06;
    set results05;

    if stat='N' then do;
        if missing(_41) then _41='0';
        if missing(_42) then _42='0';
        if missing(_51) then _51='0';
        if missing(_52) then _52='0';
        if missing(_71) then _71='0';
        if missing(_72) then _72='0';
        if missing(_101) then _101='0';
        if missing(_102) then _102='0';
    end;
run;

proc sort data=results06;
    by analgr1n paramn statord;
run;

data labels;
set results06;
    attrib _41 label = "<= 0.6 mg$(N=&gender11)"
           _42 label = "> 0.6 - 1.0 mg$(N=&gender12)"
           _51 label = "<= 0.6 mg$(N=&gender21)"
           _52 label = "> 0.6 - 1.0 mg$(N=&gender22)"
           _71 label = "<= 0.6 mg$(N=&gender101)"
           _72 label = "> 0.6 - 1.0 mg$(N=&gender102)"
           _101 label = "<= 0.6 mg$(N=&gender71)"
           _102 label = "> 0.6 - 1.0 mg$(N=&gender72)"
           paramc length=$200. label= "Formatted
timepoint"
           param1 label= "Unformatted timepoint";

    param1=param;

    if paramn=3 then paramc="AUC${sub (0-\uc8\u8734 infinity)}
(h*ng/mL)";
    else if paramn=2 then paramc="AUC${sub (0-last)} (h*ng/mL)";
    else if paramn=5 then paramc="AUC${sub (0-t')} (h*ng/mL)";
    else if paramn=4 then paramc="% AUC${sub extrap} (%)";

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else if paramn=1 then paramc= "C${sub max} (ng/mL)";
else if paramn=7 then paramc="t${sub last} (h)" ;
else if paramn=6 then paramc="t${sub max} (min)" ;
else if paramn=9 then paramc= "\uc6\u955 lambda${sub z} (1/h)";
else if paramn=8 then paramc="t${sub 1/2} (h)";
else put "WA" "RNING: Unexpected value of paramn " paramn= param=;

paramc=tranwrd(paramc,'% AUC','%AUC');

flag = 1;

if paramn in(6 7) and statord not in(1 5 6 7) then delete;

run;

%macro outrtf(blankn=, halfblnk=);

%if &halfblnk=N %then %let halfblnk=;
%else %if &halfblnk=Y %then %let halfblnk=~;

proc sql noprint;
    create table table.T_15_02_04_05_02 as
    select paramc, param1, stat, _41, _42, _51, _52, _101, _102, _71,
_72
    from labels
    order by analgrln, paramn, statord;
quit;

data paging;
    set labels;
    by analgrln paramn statord;
    if first.analgrln or first.paramn or ln gt 11 then ln=1; /*Amend to
look presentable, and avoid page overflows*/
    else ln+1;
    if ln=1 then page+1;
    call symput("page",compress(put(page,best.)));
run;

options number nodate orientation=landscape papersize=&p_pgsize missing='
';
ods escapechar='$';
%let linetop = \brdrt\brdrs\brdrw30; * needs to be 1.5pt so calculated
in twips (1/20 pt) ;
%let linebot = \brdrb\brdrs\brdrw30;

ods path stdlib.tl06326 (read) ;
ods results off;
ods rtf toc_data
file="/cvn/projects/prj/data/000000106326/TFL/&TFL_Part./&tflno..rtf"
style=tl06326 startpage=yes headery=1440 footery=1440 ;
ods noproctitle;

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%do i=1 %to &page;

    title ;
    footnote;
    %let wd=0;

    data comp;
        set paging end=eof;
        where page=&i;

        /* Amend title as needed */
        _firtitl="Table 15.2.4.5.2 Descriptive Statistics of
Pharmacokinetic Parameters of Nicotine by Nicotine Level -";
        _upcas=(length("Path: &TFLpath.")-
length(compress("Path:&TFLpath.",'ABCDEFGHIJKLMNOPQRSTUVWXYZ')))/2;
        len=&blankn.-length("(page &i of &page)");
        if eof then do;
            call symput('_FSRTITL', trim(left(_firtitl)));
            call symput('_blankn', compress(put(len,best.)));
            call symput('j',analgrln);
        end;

        drop _firtitl _upcas len;
run;

ods listing close;
ods proclabel = ' ';
* most set up in template others below;
* title arial 12pt bold with 12pt paragraph space below;
* all headers to be arial 11pt bold;
* data arial 10pt;
* headers to be central, text values left aligned and numeric
centered around decimal point;
proc report data = comp missing headline headskip missing nowd split
= '$' %if &i=1 %then %do; contents=' ' %end; %else %do; contents=' '
%end;;
    column flag page paramn paramc statord stat
    %if &j=1 %then %do; ("Group-1 PK &linebot" ("THS 2.2
Menthol$(N=&trt1) &linebot" _41 _42) ("mCC$(N=&trt2) &linebot" _51 _52))
%end;
    %if &j=2 %then %do; ("Group-2 PK &linebot" ("THS 2.2
Menthol$(N=&trt10) &linebot" _101 _102) ("NRT gum$(N=&trt7) &linebot" _71
_72)) %end;;

    define flag          / order order = internal noprint;
    define page          / order order = internal noprint;
    define paramn        / order order=internal noprint;
    define paramc        / group style={just=left cellwidth=1.5cm}
style(header)={just=center} "Variable";
    define statord       / order order = internal noprint;

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        define stat          / display style={just=left cellwidth=2cm}
style(header)={just=center} "Statistic";
        %if &j=1 %then %do;
            define _41        / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
            define _42        / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
            define _51        / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
            define _52        / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
        %end;
        %if &j=2 %then %do;
            define _101       / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
            define _102       / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
            define _71        / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
            define _72        / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
        %end;

        break before flag / page %if &i=1%then %do;
        contents="&_fsrtitl" %end; %else %do; contents='' %end;;

break after page / page;

compute after paramn;
    line " ";
endcomp;

compute before page / style={protectspecialchars=off};;
    line "&linetop";
endcomp;

compute before _page_ / style={just=left protectspecialchars=off};
    line "\b\fs24\sa24&_FSRTITL." ; * \b = bold, \fs24 is font
size 12pt, \sa24 is space after 12pt;
                                line "\b\fs24\sa24PK Population";
    line "&linebot";
endcomp;

compute after _page_ / style={just=left protectspecialchars=off
pretext="&linetop."};
        %if &j=1 %then %do;
            line 'Note: mCC = menthol conventional
cigarettes; THS = Tobacco Heating System.';
        %end;
        %else %if &j=2 %then %do;
            line 'Note: NRT gum = Nicotine Replacement
Therapy gum; THS = Tobacco Heating System.';
        %end;

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                                line 'Note:  Geometric: mean, CV% and 95%
confidence interval (CI) are reported.';
                                line ' ';
                                line 'Appendix 15.3.3.1';
                                line "Path: &TFLpath." &_blankn.*"\~\~" "(Page &i of &page)";
                                line "Program Run: &sysdate  &sysuserid  Program Status:
&status";
                                endcomp;
                                run;
                                %end;
                                ods rtf close;
                                ods results on;
                                ods path sashelp.tmplmst (read);

                                %mend ;

                                %outrtf(blankn=70, halfblnk=N);
                                ods listing;
                                proc printto print = "&table./T_15_02_04_08_01_02.lst" new;
                                run;

                                proc contents data = table.T_15_02_04_08_01_02 varnum;
                                run;
                                ods listing close;
                                proc printto ; run;
                                *=====;
                                * END OF PROGRAM CODE ;
                                *=====;

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