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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_pkconc2.sas;
%put NOTE: Purpose              : table of plasma nicotine level by sex;
%put NOTE: ;
%put NOTE: Input Data           : ADAM.ADSL ADAM.ADPC;
%put NOTE: Output               : t_15_2_4_6_1(conc);
%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: ;
%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_06_01(conc);

%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;

*****;
* read in data ;
*****;

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/*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=4;
        output;
        if index(trt01a,'mCC') or index(trt02a,'mCC') then trtord=5;
        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 sexc subjid;
run;

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

data tot2;
    set tot;
    call
symput('gender' || strip(put(trtord,best.) || substr(sexc,1,1)), strip(put(tot
al,best.)));
run;

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

data totttrt2;
    set totttrt;
    call symput('trt' || strip(put(trtord,best.)), strip(put(total,best.)));
run;

/*Bring in appropriate data from adpc*/
data adpc;
    set adam.adpc(where=(paramcd='NIC' and anl01fl='Y' and
pprotfl='Y'));

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

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data adpc_orig;
    set adpc;

    statval=aval;
run;

proc sort data=adpc_orig nodupkey out=gender;
    by usubjid analgrln trtord sexc;
run;

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

data _null_;
    set totals;
run;

proc sort data=adpc_orig;
    by analgrln analgr1 trtord trta atptn atpt sexc;
run;

proc means data=adpc_orig noprint;
    var statval;
    by analgrln analgr1 trtord trta atptn atpt sexc;
    output out=results01 n=n1 mean=mean1 std=std1 median=median1 min=min1
max=max1 q1=q11 q3=q31;
run;

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

    n = left(compress(put(n1,8.)));
    if n1 ge 4 then do;
        if not missing(median1) then median =
left(compress(put(round(median1,0.01),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(round(min1,0.1),8.1))) || ', ' ||
left(compress(put(round(max1,0.1),8.1)));
        if not missing(q11) and not missing(q31) then quart =
strip(strip(put(0.01*floor(q11/0.01),8.2)) || ', ' ||
strip(put(0.01*ceil(q31/0.01),8.2)));
    end;
    else if n1 lt 4 then do;
        median='NC';
    end;

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        meansd='NC';
        minmax='NC';
        quart='NC';
    end;
    drop n1 mean1 std1 median1 min1 max1 q11 q31;
run;

%macro outrtf(blankn=, halfblnk=);

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

/*Obtain subjects with values BLOQ*/
data adpc_blq;
    set adpc;
    where bloqfl='Y';

    statval=aval;
run;

proc freq data=adpc_blq noprint;
    table analgr1n*analgr1*trtord*trta*atptn*atpt*sexc/ out
=blq(drop=percent);
run;

%let dsid=%sysfunc(open(blq));
%let nsum=%sysfunc(attrn(&dsid.,nobs));
%let rc=%sysfunc(close(&dsid.));

%put "Check " &nsum.;

%if &nsum. lt 1 %then %do;
    proc sort data=adpc nodupkey out=tpts(keep=analgr1n analgr1
trtord trta atptn atpt sexc);
        by analgr1n analgr1 trtord trta atptn atpt sexc;
    run;

    data blq1;
        set tpts;
        attrib blq length=$50.;
        blq='0';
    run;

%end;

%else %do;

proc sort data=blq;
    by analgr1n analgr1 trtord sexc;
run;

    data blq1;
        attrib blq length=$50.;
        merge blq(in=a) tot;
        by analgr1n analgr1 trtord sexc;

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        if not a then do;
            count=0;
        end;
        percent=count/total*100;

        if count=0 then blq='0';
        else if percent=100 then blq= put(count,3.)||' (100%)';
        else blq=put(count,3.)||'
('||left(strip(put(round(percent,0.1),5.1))||'%');
        run;
    %end;

/*Obtain the geometric mean*/

data gmean;
    set adpc_orig;
    statvall=statval;
    if aval>0 then ln_statvall=log(statvall);
    else if statval=0 then gflag=1;
run;

proc means data=gmean noprint;
    output out=gmean1a n=n1 mean=mean std=std1 lclm=lci1 uclm=uci1
nmiss=miss;
    var ln_statvall;
    by analgr1n analgr1 trtord trta atptn atpt sexc;
run;

proc means data=gmean(where=(gflag=1)) noprint;
    output out=gmean1b(keep=analgr1n analgr1 trtord trta atptn atpt sexc
gflag) mean=mean;
    var ln_statvall;
    by analgr1n analgr1 trtord trta atptn atpt sexc gflag;
run;

data gmean1c;
    merge gmean1a gmean1b;
    by analgr1n analgr1 trtord trta atptn atpt sexc ;
run;

data gmean2;
    set gmean1c;
    if gflag ne 1 and n1 ge 4 then do;
        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);
    end;
    keep n1 analgr1n analgr1 trtord trta atptn atpt gcv glci guci std1 miss
gmean sexc gflag;
run;

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proc sort data=blq1;
  by analgrln analgrl trtord trta atptn atpt sexc;
run;

data results03;
  merge results02 gmean2 blq1(in=c);
  by analgrln analgrl trtord trta atptn atpt sexc;
  attrib gmeancv length=$20.;

  if not c then blq='0';

  if gflag ne 1 and n1 ge 4 then do;
    if not missing(gcv) then gmeancv=left(trim(gmean)) || ' (' ||
left(trim(gcv))||'%)';
    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)));
    end;
  else if gflag = 1 or n1 lt 4 then do;
    gmeancv='NC';
    ci='NC';
  end;
  trtans=strip(strip(put(trtord,best.)) || substr(sexc,1,1));
run;

proc sort data=results03;
  by analgrln analgrl atptn atpt;
run;

proc transpose data=results03 out=results04 prefix=_ name=varname;
  by analgrln analgrl atptn atpt;
  var n meansd median minmax ci quart gmeancv blq;
  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='BLQ' then do;
    statord=2;
    stat='BLOQ - n (%)';
  end;
  else if varname='GMEANCV' then do;
    statord=3;
    stat='Geometric Mean (CV%)';
  end;
  else if varname='CI' then do;

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        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;
        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;
        else put "WA" "RNING: Unexpected varname, stat text needs
assigning: " varname= ;
        drop varname;
run;

data results06;
    set results05;

        if stat='n' then do;
            if missing(_4m) then _4m='0';
            if missing(_5m) then _5m='0';
            if missing(_10m) then _10m='0';
            if missing(_7m) then _7m='0';
            if missing(_4f) then _4f='0';
            if missing(_5f) then _5f='0';
            if missing(_10f) then _10f='0';
            if missing(_7f) then _7f='0';
        end;
run;

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

data labels;
set results06;
    attrib _4m label = "Males$(N=&gender4m) "
        _4f label = "Females$(N=&gender4f) "
        _5m label = "Males$(N=&gender5m) "
        _5f label = "Females$(N=&gender5f) "
        _10m label = "Males$(N=&gender10M) "
        _10f label = "Females$(N=&gender10F) "
        _7m label = "Males$(N=&gender7m) "
        _7f label = "Females$(N=&gender7f) "
        atpt label= "Formatted timepoint"

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                                atpt1 label= "Unformatted timepoint";

                                atpt1=atpt;

                                if index(atpt,'T0') then atpt=tranwrd(atpt,'T0',"T${sub 0}");

                                flag = 1;
run;

proc sql noprint;
    create table table.T_15_02_04_06_01 as
    select atpt, atpt1, stat, _4m, _4f, _5m, _5f, _10m, _10f, _7m, _7f
    from labels
    order by analgrln, atptn, statord;
quit;

data paging;
    set labels;
    by analgrln atptn statord;
    if first.analgrln or first.atptn 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_pgsz 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;
%do i=1 %to &page;

    title ;
    footnote;
    %let wd=0;
        %let nc=0;

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

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/* Amend title as needed */
_firtitl="Table 15.2.4.6.1 Descriptive Statistics of the Plasma
Nicotine Concentrations (ng/mL) by Sex - PK Population";
_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.)));
end;

call symput('j',analgrln);

if index(_4m,'NC') or index(_5m,'NC') or
index(_10M,'NC') or index(_7M,'NC')
or index(_4f,'NC') or index(_5f,'NC') or
index(_10F,'NC') or index(_7F,'NC') then call symput('NC',1);

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
= '$' %if &i=1 and &j=1 %then %do; contents=' ' %end; %else %do;
contents='' %end;;
column flag page atptn atpt statord stat
%if &j=1 %then %do; ("Group-1 PK &linebot" ("THS 2.2
Menthol$(N=&trt4) &linebot" _4m _4f) ("mCC$(N=&trt5) &linebot" _5m _5f))
%end;
%if &j=2 %then %do; ("Group-2 PK &linebot" ("THS
2.2 Menthol$(N=&trt10) &linebot" _10m _10f) ("NRT gum$(N=&trt7) &linebot"
_7m _7f)) %end; ;

define flag / order order = internal noprint;
define page / order order = internal noprint;
define atptn / order order=internal noprint;
define atpt / group style={just=left cellwidth=2cm}
style(header)={just=center} "Timepoint";
define statord / order order = internal noprint;
define stat / display style={just=left cellwidth=2cm}
style(header)={just=center} "Statistic";
%if &j=1 %then %do;
define _4m / display style={just=c cellwidth=1.5cm}
style(header)={just=center};

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        define _4f          / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
        define _5m          / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
        define _5f          / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
        %end;
        %if &j=2 %then %do;
        define _10m         / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
        define _10f         / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
        define _7m          / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
        define _7f          / display style={just=c cellwidth=1.5cm}
style(header)={just=center};
        %end;

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

break after page / page;

compute after atptn;
    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 "&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;
        line 'Note: Geometric: mean, CV% and 95%
confidence interval (CI) are reported.';
        %if &NC=1 %then %do;
            line "Note: NC = Not calculated.";
        %end;
        line 'Note: T${sub 0} = Time of first
product use at single use day.';

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                                line 'Note: BLOQ values before T${sub 0} are
treated as zero. BLOQ values after the last quantifiable value are
treated as missing. Any other BLOQ values are imputed by LLOQ/2.';
                                %if &nsum. ge 1 %then %do;
                                    line 'Note: LLOQ = 0.2 ng/mL.';
                                %end;
                                line ' ';
                                line 'Appendix 15.3.3.2';
                                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_06_01.lst" new;
                                run;

                                proc contents data = table.T_15_02_04_06_01 varnum;
                                run;
                                ods listing close;
                                proc printto ; run;
                                *=====;
                                * END OF PROGRAM CODE ;
                                *=====;

```