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%_mprintto;
options notes nosource;
proc datasets lib=work nolist memtype=data kill; quit;
%put NOTE:
=====;
%put NOTE: Covance Study Number : 000000106324;
%put NOTE: Client Protocol ID   : ZRHR-REXC-03-EU;
%put NOTE: Program Name        : f_pkconc2.sas;
%put NOTE: Purpose              : Figure of Plasma Cotinine
concentrations;
%put NOTE: ;
%put NOTE: Input Data           : ADAM.ADPC;
%put NOTE: Output               : f_15_1_2_32(conc);
%put NOTE: Macros Called        : _MPRINTTO;
%put NOTE: ;
%put NOTE: Programmed by        : cvn_jhardman;
%put NOTE: Creation Date        : 2014-08-05;
%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: 06Aug2014  JMH        1) Added BLQ line and footnote;
%put NOTE: 06Aug2014  JMH        2) Amended to present by timepoint;
%put NOTE: 15Sep2014  JMH        3) Added XLS output;
%put NOTE: 16Sep2014  JMH        4) Amended title and footnotes;
%put NOTE: 19Sep2014  KB         5) Amended baseline footnote;
%put NOTE: 17Oct2014  KB         6) Only showed evening Day 5 data;
%put NOTE: 26Oct2014  KB         7) Amended update 6 and removed day 6
data;
%put NOTE: ;
%put NOTE:
=====;
options notes source source2 nofullstimer validvarname=upcase missing='
';
ods _all_ close;
ods listing;

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

/* Standard - just change the number to match the listing you're working
on. Also change the letters in the*/
/* bracket, eg ccb = current cigarette brands. Make sure to do this at
the top of the code too. */

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%let tflno=F_15_01_02_32(conc);

/* Standard - leave this */
%let TFL_Part=%scan(&_SASPROGRAMFILE,-3,%str(/));

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

/* Example of basic GTL syntax */
ods _all_ close;
%let temp=/cvn/projects/prj/development/000000106324/dev/macro/;

/* Ensure ODS listing, html etc is turned off to prevent */
/* temporary or junk image files being produced */
options notes source source2 nofullstimer validvarname=upcase
nonumber nodate orientation=portrait papersize=&p_pgsz missing=' ';
ods graphics on; /* As we are effectively using ODS graphics we need to
ensure that it is turned on */
ods graphics / height=12cm width=16cm noborder; /* Removes border around
the image */
ods path reset;
/* please include styles template */
%include "&temp.figtmpplt.sas";

ods rtf toc_data
file="/cvn/projects/prj/data/000000106324/TFL/&TFL_Part/&tflno..rtf"
style=t106324_g startpage=yes headery=1440 footery=1440 ;

ods exclude all;

data adpc;
    set adam.adpc(where=(paramcd='COT' and anl01fl='Y' and fasfl='Y'
and pcstat ne 'NOT DONE'));
    if ablfl='Y' then do; avisit='Baseline'; avisitn=100; end;
    if avisit ne 'Baseline' and avisitn lt 101 then delete;

    /* 7) START KB 26Oct2014 */
    /* 6) START KB 17Oct2014 */
    /* IF AVISIT='Day 5' AND ANL02FL NE 'Y' THEN DELETE; */
    /* IF ANL02FL='Y' THEN DO; */
    /*     AVISIT='Day 5 Evening'; */
    /*     ATPT='Day 5 Evening'; */
    /*     ATPTN=5; */
    /* END; */
    /* 6) END KB 17Oct2014 */
    /* 7) END KB 26Oct2014 */

    IF AVISIT='Day 6/Discharge' THEN DELETE; /* 7) KB 26Oct2014 */

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        IF TRTA NE 'SA' AND AVISIT='Day 5' AND ATPT NE 'T0 + 16 h' THEN
DELETE; /* 7) KB 26Oct2014 */

run;

data gmean;
    set adpc;
    statval=aval;
    if statval ne 0 then ln_statval=log(statval);
    else gflag=1;
run;

proc sort data=gmean; by param avalu trtan trta avisitn avisit ATPTN
ATPT; run; /* 2) JMH 06Aug2014 */

proc means data=gmean(where=(gflag=1)) noprint;
    output out=gmeanla(keep=param avalu trtan trta avisitn avisit ATPTN
ATPT gflag) mean=mean ; /* 2) JMH 06Aug2014 */
    var ln_statval;
    by param avalu trtan trta avisitn avisit ATPTN ATPT gflag; /* 2) JMH
06Aug2014 */
run;

proc means data=gmean alpha=0.05 noprint;
    output out=gmeanlb mean=mean std=stdl lclm=lci1 uclm=uci1;
    var ln_statval;
    by param avalu trtan trta avisitn avisit ATPTN ATPT; /* 2) JMH
06Aug2014 */
run;

data gmean2;
    merge gmeanla gmeanlb;
    by param avalu trtan trta avisitn avisit ATPTN ATPT; /* 2) JMH
06Aug2014 */
    attrib tpt format = /*best.*/8.1; /* 2) JMH 06Aug2014 */

if gflag ne 1 then do;
    gmean=exp(mean);
    lclm=exp(lci1);
    uclm=exp(uci1);
end;

    avisit1=left(strip(tranwrd(avisit,'Day ','')));
    IF AVISIT='Day 5' THEN ATPTN=0; /* 7) KB 26Oct2014 */

    if avisit='Baseline' then tpt=0;
/* 2) START JMH 06Aug2014 */
/* else if avisit='Day 6/Discharge' then tpt=6;*/
    ELSE IF AVISIT=/'Day 5'/'Day 5 Evening' THEN DO; /* 6) KB
17Oct2014 */
        IF MISSING(ATPTN) OR ATPTN=0 THEN TPT=5;
/* ELSE IF ATPTN=1 THEN TPT=5.1;*/
/* ELSE IF ATPTN=2 THEN TPT=5.2;*/
/* ELSE IF ATPTN=3 THEN TPT=5.3;*/

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/*          ELSE IF ATPTN=4 THEN TPT=5.4;*/
/*          ELSE IF ATPTN=5 THEN TPT=5.5;*/
/*          ELSE IF ATPTN=6 THEN TPT=5.6;*/
/*          ELSE IF ATPTN=7 THEN TPT=5.7;*/
/*          ELSE IF ATPTN=8 THEN TPT=5.8;*/
          ELSE PUT "WA" "RNING: TPT needs assigning " AVISIT= ATPTN=
ATPT= ;
      END;
      ELSE IF AVISIT='Day 6/Discharge' THEN DO;
          IF MISSING(ATPTN) OR ATPTN=9 THEN TPT=6;
          ELSE IF ATPTN=10 THEN TPT=6.1;
          ELSE PUT "WA" "RNING: TPT needs assigning " AVISIT= ATPTN=
ATPT= ;
      END;
/* 2) end JMH 06Aug2014 */
      else tpt=input(avisit1,best.);
      keep param avalu trtan trta avisitn avisit gmean lclm uclm tpt
ATPTN ATPT; /* 2) JMH 06Aug2014 */
run;

/*Use a proc summary to find the maximum value of the Y axis which needs
to be presented for the first plot*/
proc summary data=gmean2;
    by param;
    var uclm;
    output out =axis1  max=max1;
run;

data maxaxis1;
    set axis1;
    max2=(ceil(max1));

    /*Use mod 2 to ensure axis limit is an even number so the increment
can be 2*/
    if mod(max2,2)=0 then max=max2;
    else if mod(max2,2)=1 then max=max2+1;

    keep param max;
run;

data adbx3;
    merge gmean2 maxaxis1;
    by param;
run;

/* 3) start JMH 15Sep2014 */
PROC SQL;
CREATE TABLE ADBX3_X AS
SELECT PARAM, TRTA, AVISIT, /*ATPT,*/ GMEAN, LCLM, UCLM /* 7) KB
26Oct2014 */
FROM ADBX3;
QUIT;

PROC EXPORT

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DATA=ADBX3_X
DBMS=XLSX
OUTFILE="/cvn/projects/prj/data/000000106324/TFL/&TFL_Part./&tflno..xlsx"
REPLACE;
SHEET=Sheet1;
/* 3) end JMH 15Sep2014 */

proc format;
    value xaxis
        0='Baseline'
        1='1'
        2='2'
        3='3'
        4='4'
        5='5'
        6='6';

run;

title;
footnote;

data paging; /* paging is derived normally as with RTF type TFL */

    set adbx3 end=last;
    page = 1;
    if last then call symput("maxpage", compress(page));

run;

%macro graph();

%do i=1 %to &maxpage; /* paging can either be done through a do loop or
multiple macro calls */

    data plot;
        set paging;
        where page = &i;
        call symput("unit", strip(avalu));
        call symput("max1", max);
    run;

    proc template;
        define statgraph splot /store = work.templat;
            beginingraph /;
/*
entrytitle halign=left
"Figure 15.1.2.32 Plasma Cotinine Concentrations (&unit) Geometric Mean
and 95% CI - FAS"; */ /* 4) JMH 16Sep2014 */
/*
entrytitle halign=left " "
/* */ /* 4) JMH 16Sep2014 */
            layout overlay / border=false
xaxisopts=(linearopts=(tickvaluesequence=(start=0 end=6 increment=1))
label="Study Day") yaxisopts=(linearopts=(tickvaluesequence=(start=0

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end=280 increment=40) viewmin=0 viewmax=280) label="Cotinine (&unit)")
cycleattrs=false;
        seriesplot x=tpt y=gmean / index=trtan primary=true
group=trta display=(markers) legendlabel="mean" name="series";
        /*referenceline y=0.5 / ;*/ /*This would be the BLOQ
value*/
        REFERENCELINE y=1/ LINEATTRS=(PATTERN=SHORTDASH); ;
/* 1) JMH 06Aug2014 */
        scatterplot x=tpt y=gmean / index=trtan group=trta
yerrorlower=lclm yerrorupper=uclm
        legendlabel="mean" name="scatter" ;
        discretelegend "series";
        endlayout;
        /* footnotes work using the same option as the entrytitle
statement */
        /* 4) start JMH 16Sep2014 */
/*
        entryfootnote halign=left " ";*/
/*
        ENTRYFOOTNOTE HALIGN=LEFT
"----- Lower limit of quantification (1 ng/mL)";*/ /* 1) JMH
06Aug2014 */
/*
        entryfootnote halign=left
"Note: CC = Conventional cigarettes; SA = Smoking abstinence; THS =
Tobacco Heating System";*/
/*
        entryfootnote halign=left
"Note: Baseline is Day 0, 08:00 PM - 10:00 PM."; */
/*
        entryfootnote halign=left "
";*/
/*
        entryfootnote halign=left "Appendix 15.2.4.36"; */
/*
        entryfootnote halign=left "Path: &TFLpath."
halign=right "(Page &i of &maxpage)"; */
/*
        entryfootnote halign=left "Program Run: &sysdate
&sysuserid Program Status: &status";*/
/* 4) end JMH 16Sep2014 */
        endgraph;
        end;
run;

ods select all;

/* 4) start JMH 16Sep2014 */
ODS ESCAPECHAR='^';
ODS RTF PREPAGE="^S={outputwidth=100% just=l font_size=12pt
font_weight=bold background=white foreground=black
font_face=arial}^R/RTF'\QL' Figure 15.1.2.32 Plasma Cotinine
Concentrations (&unit) Geometric Mean and 95% CI - FAS";
/* 4) end JMH 16Sep2014 */

proc sgrender data=plot template=splot; /* applies the above
template to the specified data */
        format tpt xaxis.;
run;

/* 4) start JMH 16Sep2014 */

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ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL'";
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' ----- Lower limit of
quantification (1 ng/mL).";
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Note: CC = Conventional
cigarettes; SA = Smoking abstinence; THS = Tobacco Heating System.";
/*ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt
background=white foreground=black font_face=arial}^R/RTF'\QL' Note:
Baseline is Day 0, 08:00 PM - 10:00 PM.";*/
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Note: Baseline is the last
assessment prior to first product use in CC/THS 2.2 arms on Day 1 or last
assessment prior to 06:29 AM in SA arm on Day 1."; /* 5) KB 19Sep2014 */
/*ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt
background=white foreground=black font_face=arial}^R/RTF'\QL' Note: Day 5
value is the evening result, the closest reading to 08:00 PM."; *//* 6)
KB 17Oct2014 */ /* 7) KB 26Oct2014 */
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Note: Evening result is
presented for Day 5."; /* 7) KB 26Oct2014 */
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL'";
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Appendix 15.2.4.36";
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Path: &TFLpath.
(Page &i of &maxpage)";
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Program Run: &sysdate
&sysuserid Program Status: &status";
/* 4) end JMH 16Sep2014 */

%end;
%mend graph;
%graph;
proc printto ; run;
/*ods exclude all;*/ /*Do not use this line of code as it causes issues
when running tables and listings after figures*/
ods _all_ close;
ods graphics / reset;

```