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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_hpma.sas;
%put NOTE: Purpose              : Figure of 3-HPMA adjusted for
creatinine FAS;
%put NOTE: ;
%put NOTE: Input Data           : ADAM.ADBX;
%put NOTE: Output               : f_15_1_1_3(hpma);
%put NOTE: Macros Called        : _MPRINTTO;
%put NOTE: ;
%put NOTE: Programmed by        : cvn_jhardman;
%put NOTE: Creation Date        : 2014-06-05;
%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: 09Jun2014   JR        1) Amended title and footnote;
%put NOTE: 11Jun2014   JMH       2) Put the 1 in the y axis label in
square brackets and amended axis limits;
%put NOTE: 19Jun2014   JMH       3) Added units to y axis label;
%put NOTE: 19Jun2014   KB        4) Removed footnote;
%put NOTE: 22Jun2014   JMH       5) Amended axis and added footnote;
%put NOTE: 24Jun2014   JMH       6) Removd Day -1;
%put NOTE: 06Aug2014   JMH       7) Added proc printto;
%put NOTE: 15Sep2014   JMH       8) Added XLS output;
%put NOTE: 15Sep2014   JMH       9) Amended title and footnotes;
%put NOTE: 19SEP2014   JM        10) Updated title to keep unit display
in one line;
%put NOTE: ;
%put NOTE:
=====;
options notes source source2 nofullstimer validvarname=upcase missing='
';
ods _all_ close;
ods listing;

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

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/* 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. */
%let tflno=F_15_01_01_03(hpma);

/* 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 adbx1;
    set adam.adbx(where=(anl02fl='Y' and fasfl ='Y' and lbstat ne 'NOT
DONE' and paramcd in ('U3HPMCRE')));
run;

data adbx2;
    set adbx1;
run;

data gmean;
    set adbx2;
    statval=aval;
    if statval ne 0 then ln_statval=log(statval);

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        else gflag=1;
run;

proc sort data=gmean; by param avalu trtan trta avisitn avisit; run;

proc means data=gmean(where=(gflag=1)) noprint;
    output out=gmeanla(keep=param avalu trtan trta avisitn avisit gflag)
mean=mean ;
    var ln_statval;
    by param avalu trtan trta avisitn avisit gflag;
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;
run;

data gmean2;
    merge gmeanla gmeanlb;
    by param avalu trtan trta avisitn avisit;
    attrib tpt format = best.;

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

    avisit1=left(strip(tranwrd(avisit,'Day ','')));
    tpt=input(avisit1,best.);

    keep param avalu trtan trta avisitn avisit gmean lclm uclm tpt;
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 max2 max1;
run;

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data adbx3;
  merge gmean2 maxaxis1;
  by param;

  IF AVISITN=99 THEN DELETE; /* 6) JMH 24Jun2014 */

run;

/* 8) start JMH 15Sep2014 */
PROC SQL;
CREATE TABLE ADBX3_X AS
SELECT PARAM, TRTA, AVISIT, GMEAN, LCLM, UCLM
FROM ADBX3;
QUIT;

PROC EXPORT
DATA=ADBX3_X
DBMS=XLSX
OUTFILE="/cvn/projects/prj/data/000000106324/TFL/&TFL_Part./&tflno..xlsx"
REPLACE;
SHEET=Sheet1;
/* 8) end JMH 15Sep2014 */

PROC FORMAT; /* 5) JMH 22Jun2014 */
  VALUE XAXIS
/*      -1='-1'*/ /* 5) JMH 24Jun2014 */
      0='Baseline'
      1='1'
      2='2'
      3='3'
      4='4'
      5='5';

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;

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

proc template;
    define statgraph splot /store = work.templat;
        begingraph /;
/*          entrytitle halign=left "Figure 15.1.1.3 3-HPMA Urinary
Concentration Adjusted for Creatinine (&unit) Mean and 95% CI - FAS" /*;*/
/*          entrytitle halign=left "Figure 15.1.1.3 3-HPMA
Urinary Concentration Adjusted for Creatinine (&unit) Geometric Mean and
95% CI - FAS" /*;*/ /* 1) JR 09Jun2014 */
/*          entrytitle halign=left " " /*;*/ /* 9) JMH 15Sep2014 */
            layout overlay / border=false
xaxisopts=(linearopts=(tickvaluesequence=(start=0/*-1*/ end=5
increment=1)) label="Study Day")
yaxisopts=(linearopts=(tickvaluesequence=(start=0 end=1200/*&max1*/
increment=200/*2*/)) viewmin=0 viewmax=1200/*&max1*/) label=/"3-HPMA
(&UNIT) [1]"/"3-HPMA (&UNIT)" /*LABELATTRS=(SIZE=9.5PT)*/)
cycleattrs=false; /* 2) JMH 11Jun2014 */ /* 3) JMH 19Jun2014 */ /* 4)
KB 19Jun2014 */ /* 5) JMH 24Jun2014 */
            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*/
            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 */
/* 9) start JMH 15Sep2014 */
/*          entryfootnote halign=left " " /*;*/
/*          entryfootnote halign=left
"Note: [1] 3-HPMA Urinary Concentration Adjusted for Creatinine
(&unit)";/* /* 4) KB 19Jun2014 */
/*          entryfootnote halign=left
"Note: CC = Conventional cigarettes; SA = Smoking abstinence; THS =
Tobacco Heating System";/*
/*          ENTRYFOOTNOTE HALIGN=LEFT
"Baseline is defined as the last assessment prior to 06:29 AM on Day
1."/* /* 5) JMH 22Jun2014 */
/*          entryfootnote halign=left "
";/*
/*          entryfootnote halign=left "Appendix 15.2.3.8,
15.3.3.1";/*
/*          entryfootnote halign=left "Appendix 15.2.3.8";/* /* 1)
JR 09Jun2014 */
/*          entryfootnote halign=left "Path: &TFLpath."
halign=right "(Page &i of &maxpage)"; /*
/*          entryfootnote halign=left "Program Run: &sysdate
&sysuserid Program Status: &status";/*

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/* 9) end JMH 15Sep2014 */
    endgraph;
    end;
    run;

    ods select all;

/* 9) start JMH 15Sep2014 */
ODS ESCAPECHAR='^';
ODS RTF PREPAGE="^S={outputwidth=100% just=1 font_size=12pt
font_weight=bold background=white foreground=black
font_face=arial}^R/RTF'\QL' Figure 15.1.1.3 3-HPMA Urinary Concentration
Adjusted for Creatinine      (&unit) Geometric Mean and 95% CI - FAS";
/*10) JM 19SEP2014*/
/* 9) end JMH 15Sep2014 */

    proc sgrender data=plot template=plot; /* applies the above
template to the specified data */
        FORMAT TPT XAXIS.; /* 5) JMH 22Jun2014 */
    run;

/* 9) start JMH 15Sep2014 */
ODS RTF TEXT="^S={outputwidth=100% just=1 font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL'";
ODS RTF TEXT="^S={outputwidth=100% just=1 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=1 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.";
ODS RTF TEXT="^S={outputwidth=100% just=1 font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL'";
ODS RTF TEXT="^S={outputwidth=100% just=1 font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Appendix 15.2.3.8";
ODS RTF TEXT="^S={outputwidth=100% just=1 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=1 font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Program Run: &sysdate
&sysuserid   Program Status: &status";

/* 9) end JMH 15Sep2014 */

%end;
%mend graph;
%graph;
PROC PRINTTO; RUN; /* 7) JMH 06Aug2014 */
/*ods exclude all;*/ /*TO BE EXCLUDED FROM ALL CODE*/
ods _all_ close;
ods graphics / reset;

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