

```

%_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_co.sas;
%put NOTE: Purpose              : Figure of CO FAS;
%put NOTE: ;
%put NOTE: Input Data           : ADAM.ADBX;
%put NOTE: Output               : f_15_1_2_4(co);
%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: 22Jun2014  JMH        1)  Removed listing from footnote;
%put NOTE: 06Aug2014  JMH        2)  Added proc printto;
%put NOTE: 15Sep2014  JMH        3)  Added XLS output;
%put NOTE: 15Sep2014  JMH        4)  Amended title and footnotes;
%put NOTE: 02Oct2014  JMH        5)  Removed Day 6 as per cleint
comments;
%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. */
%let tflno=F_15_01_02_04(co);

/* Standard - leave this */

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%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 ('CO')));
run;

data adbx2;
    set adbx1;
    if ablfl='Y' then avisit='Baseline';
    if avisit ne 'Baseline' and avisitn lt 101 then delete;
    if avisit='Baseline' then avisit='Day 0';

    IF AVISITN=106 THEN DELETE; /* 5) JMH 02Oct2014 */
run;

data mean;
    set adbx2;
    statval=aval;
run;

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

proc means data=mean alpha=0.05 noprint;
  output out=mean1 mean=mean std=std1 lclm=lci1 uclm=uci1;
  var statval;
  by param avalu trtan trta avisitn avisit;
run;

data mean2;
  set mean1;
  by param avalu trtan trta avisitn avisit;
  attrib tpt format = best.;

  if avisit='Day 6/Discharge' then avisit1='6';
  else avisit1=left(strip(tranwrd(avisit,'Day ','')));
  tpt=input(avisit1,best.);

  keep param avalu trtan trta avisitn avisit mean lci1 uci1 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=mean2;
  by param;
  var uci1;
  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 mean2 maxaxis1;
  by param;

  if avisitn le 99 then delete;

run;

/* 3) start JMH 15Sep2014 */
PROC SQL;
CREATE TABLE ADBX3_X AS
SELECT PARAM, TRTA, AVISIT, MEAN, LCI1, UCI1
FROM ADBX3;
QUIT;

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PROC EXPORT
DATA=ADB3_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;
            begingraph /;
/*            entrytitle halign=left "Figure 15.1.2.4 Exhaled CO
Arithmetic Mean and 95% CI - FAS" /* 4) JMH 15Sep2014 */
/*            entrytitle halign=left " " /* 4) JMH 15Sep2014 */
            layout overlay / border=false
axisopts=(linearopts=(tickvaluesequence=(start=0 end=5/*6*/
increment=1)) label="Study Day")

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yaxisopts=(linearopts=(tickvaluesequence=(start=0 end=20 increment=5)
viewmin=0 viewmax=20) label="Exhaled CO (&unit)") cycleattrs=false; /*
5) JMH 02Oct2014 */
        seriesplot x=tpt y=mean / 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=mean / index=trtan group=trta
yerrorlower=lci1 yerrorupper=uci1
        legendlabel="mean" name="scatter" ;
        discretelegend "series";
        endlayout;
        /* footnotes work using the same option as the entrytitle
statement */
        /* 4) start JMH 15Sep2014 */
/*
        entryfootnote halign=left " ";*/
/*
        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.";
*/
/*
        entryfootnote halign=left "
";*/
/*
        ENTRYFOOTNOTE HALIGN=LEFT "Appendix 15.2.4.7"; */
/*
        entryfootnote halign=left "Path: &TFLpath."
halign=right "(Page &i of &maxpage)"; */
/*
        entryfootnote halign=left "Program Run: &sysdate
&sysuserid Program Status: &status";*/
        /* 4) end JMH 15Sep2014 */
        endgraph;
        end;
        run;

        ods select all;

        /* 4) start JMH 15Sep2014 */
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 15.1.2.4 Exhaled CO Arithmetic Mean
and 95% CI - FAS";
        /* 4) end JMH 15Sep2014 */

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

        /* 4) start JMH 15Sep2014 */
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL'";

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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' 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 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=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 15.2.4.7";
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 15Sep2014 */

%end;
%mend graph;
%graph;
PROC PRINTTO; RUN; /* 2) JMH 06Aug2014 */

ods exclude all;
ods _all_ close;
ods graphics / reset;

```