

```

%_mprintto;
options notes nosource;
proc datasets lib=work nolist memtype=data kill; quit;
%put NOTE:
=====;
%put NOTE: Covance Study Number : 0000001063264;
%put NOTE: Client Protocol ID   : ZRHR-REXC-03-EU;
%put NOTE: Program Name        : t_cohb.sas;
%put NOTE: Purpose              : table decriptive stats of cohb ;
%put NOTE: ;
%put NOTE: Input Data           : ADAM.ADBX ADAM.ADSL;
%put NOTE: Output               : t_15_2_3_6(cohb);
%put NOTE: Macros Called        : _MPRINTTO;
%put NOTE: ;
%put NOTE: Programmed by        : cvn_smulholl;
%put NOTE: Creation Date        : 2014-05-14;
%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: 15May2014  JMH       1)    Amended footnote as per shell;
%put NOTE: 15May2014  JMH       2)    Set arithmetic CI to blank for
raw values;
%put NOTE: 15May2014  JMH       3)    Made 0 in T) subscript;
%put NOTE: 19Jun2014  JMH       4)    Amended label of Geometric CI and
added footnote;
%put NOTE: 24Jun2014  JMH       5)    Amended in line with formatting
updates;
%put NOTE: 01Aug2014  JMH       6)    Amended in line with formatting
updates;
%put NOTE: 18Sep2014  JR        7)    Updated baseline footnote;
%put NOTE: 19Sep2014  KB        8)    Amended VARIABLE for incorrect
capitalisation;
%put NOTE: 25Sep2014  JMH       9)    Amended BLQ;
%put NOTE: 03Oct2014  JR        10)    Amedned blq presentation;
%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_03_06(cohb);

%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 ;
*****;

/*Use ADSL to get N values for column headers*/
data adsl;
    set adam.adsl(where=(fasfl='Y'));
run;

proc sort data=adsl nodupkey out=adsl1;
    by trt01an trt01a subjid;
run;

proc freq data=adsl1(where=(not missing(trt01an))) noprint;
    table trt01an*trt01a/ out =tot(drop=percent rename=(count=total));
run;

data tot2;
    set tot;
    call symput('trt' || compress(put(trt01an,best.)),
compress(total));
run;

/*Bring in appropriate data from ADBX*/
data adbx1;
    set adam.adbx(where=(anl02fl='Y' and fasfl='Y' and paramcd in
('CARBXHGB')));
run;

data adbx;
    set adbx1;
    IF ABLFL='Y' THEN DO; AVISIT='Baseline'; AVISITN=100; END; /* 6)
JMH 01Aug2014 */
    IF AVISIT NE 'Baseline' AND AVISITN LT 101 THEN DELETE; /* 6) JMH
01Aug2014 */
run;

data adbx_orig;
    set adbx;
    statval=aval;
    type='abs';
    output;
    statval=pchg;

```

```

        type='pchg';
        output;
run;

proc sort data=adbx_orig;
    by type trtan trta avisitn avisit atptn atpt;
run;

proc means data=adbx_orig noprint;
    var statval;
    by type trtan trta avisitn avisit atptn atpt;
    output out=results02 n=n1 mean=mean1 std=std1 median=median1 min=min1
max=max1 q1=q1 q3=q3 lclm=lci1 uclm=uci1;
run;

data results03;
    set results02;
    attrib meansd length=$20.
            minmax length=$20.
            n      length=$20.
            median length=$20.
            quart  aci length=$20.;

    n = left(compress(put(n1,8.)));
    * differing DP per biomarker ;
    * COHb as ldp;
    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(mean1,8.2))) || ' (' ||
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(lci1) and not missing(uci1) then aci =
strip(put(0.01*floor(lci1/0.01),8.2)) || ', ' ||
strip(put(0.01*ceil(uci1/0.01),8.2));
    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))); /* 5) JMH 24Jun2014 */

    drop n1 mean1 std1 median1 min1 max1 q1 q3 uci1 lci1 ;
run;

/*Obtain subjects with values BLOQ*/
data adbx_blq;
    set adbx;
    where bloqfl='Y';
    statval=aval;
    type='abs';
    output;

```

```

        statsval=pchg;
        type='pch';
        output;
run;

proc freq data=adbx_blq noprint;
    table type*trtan*trta*avisitn*avisit*atptn*atpt/ out
    =blq(drop=percent);
run;

%macro outrtf(blankn=, halfblnk=);

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

%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=adbx_orig nodupkey out=tpts(keep=type avisitn
    avisit atptn atpt trtan trta);
        by trtan trta type avisitn avisit atptn atpt;
    run;

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

%end;

%else %do;
    data blq1;
        attrib blq length=$50.;
        merge blq(in=a) tot;
        by trtan trta avisitn avisit atptn atpt;
        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.)||' ('||put(percent,5.2)||'%)';
    run;

%end;

/*Obtain the geometric mean*/

```

```

data gmean;
    set adbx_orig(where=(type='abs'));
    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 trtan trta type avisitn avisit atptn atpt;
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));
    glci=exp(lci1);
    guci=exp(uci1);
    keep type trtan trta avisitn avisit atptn atpt gmean gcv glci guci
    std1;
run;

/*Combine the Gmean and BLQ with other stats*/
proc sort data=results03;
    by trtan trta type avisitn avisit atptn atpt;
run;

data results04;
    merge results03 gmean2 blq1;
    attrib gmeancv length=$20.;
    by trtan trta type avisitn avisit atptn atpt;
    if not missing(gcv) then gmeancv=left(trim(gmean)) || ' (' ||
left(trim(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)));
run;

proc sort data=results04;
    by trtan trta type avisitn avisit atptn atpt;
run;

proc sort data=blq1;
    by trtan trta type avisitn avisit atptn atpt;
run;

data results05;
    merge results04 blq1;
    by trtan trta type avisitn avisit atptn atpt;

```

```

        IF TYPE='abs' THEN ACI='';/* 2) JMH 15May2014 */
        IF TYPE='pch' AND BLQ = '0' THEN BLQ=''; /* 10) JR 03Oct2014
*/
run;

proc sort data=results05;
    by type avisitn avisit atptn atpt;
run;

proc transpose data=results05(where=(type='abs')) out=results06 prefix=r
name=varname;
    by avisitn avisit atptn atpt;
    var n meansd median minmax aci quart blq gmeancv ci;
    id trtan;
    idlabel trta;
run;

proc transpose data=results05(where=(type='pch' and avisitn>100))
out=results06c prefix=c name=varname;
    by avisitn avisit atptn atpt;
    var n meansd median minmax aci quart blq;
    id trtan;
    idlabel trta;
run;

proc sort data=results06;
    by avisitn avisit atptn atpt varname;
run;

proc sort data=results06c;
    by avisitn avisit atptn atpt varname;
run;

data results07;
    merge results06 results06c;
    by avisitn avisit atptn atpt varname;
    attrib stat variable length = $100.;
    varname=upcase(varname);

    if avisitn gt 104 then variable=compbl(STRIP(avisit) ||', '|| atpt);
/* 6) JMH 01Aug2014 */
    else variable=compbl(avisit);

    if varname='N' then do;
        statord=1;
        stat='n';
    end;
    else if varname='BLQ' then do;
        statord=2;
        stat='BLOQ - n (%)';
        /*delete;*/          * not required for this output; /* 9) JMH
25Sep2014 */

```

```

        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'; */
            STAT='Geometric 95% CI'; /* 4) JMH 19Jun2014 */ /* 5) JMH
24Jun2014 */
        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 if varname='ACI' then do;
            statord=9;
            stat='95% CI';
        end;
        drop varname;
run;

data results08;
    set results07;

    if stat='N' then do;
        * havent set changes to missing as not expected ;
        if missing(r1) then r1='0';
        if missing(r2) then r2='0';
        if missing(r3) then r3='0';
    end;
run;

data labels;
set results08;
    attrib r1 label = "Raw$value"
           r2 label = "Raw$value"
           r3 label = "Raw$value"
           c1 label = '%Change$ (*)'
           c2 label = '%Change$ (*)'
           c3 label = '%Change$ (*)';

```

```

/*          IF INDEX(VARIABLE,'T0') THEN
VARIABLE=TRANWRD(VARIABLE,'T0','T${suB 0}');*/ /* 3) JMH 15May2014 */
          IF INDEX(VARIABLE,'T0') THEN
VARIABLE=TRANWRD(VARIABLE,'T0','T${sub 0}'); /* 8) KB 19Sep2014 */

                                flag=1;

run;

proc sql noprint;
    create table table.T_15_02_03_06 as
    select avisitn, atpt, variable, statord, stat, r1, c1, r2, c2, r3,
c3
    from labels
    order by avisitn, atptn, statord;
quit;

proc sort data=labels;
    by avisitn atptn statord;
run;

data paging;
    set labels;
    by avisitn atptn statord;
    if (first.avisitn or first.atptn) or ln > 16 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.tl06324 (read) ;
ods results off;
ods rtf toc_data
file="/cvn/projects/prj/data/000000106324/TFL/&TFL_Part./&tflno..rtf"
style=tl06324 startpage=yes headery=1440 footery=1440 ;
ods noproctitle;

%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 15.2.3.6 Descriptive Statistics of COHb (%) - FAS";

    _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;

    drop _firtitl _upcas len;
run;

ods proclabel = ' ';
ods listing close;

* 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 =
'$' %if &i=1 %then %do; contents=' ' %end; %else %do; contents=' ' %end;;
    column flag page avisitn atptn variable statord stat ("THS
2.2$(N=&trt1)&linebot" r1 c1)
    ("CC$(N=&trt2)&linebot" r2 c2) ("SA$(N=&trt3)&linebot" r3 c3);

    define flag          / order order = internal noprint;
    define page          / order order = internal noprint;
    define avisitn       / order order=internal noprint;
    define atptn         / order order=internal noprint;
    define variable      / group style={just=left cellwidth=/*3.9*/1.8cm}
style(header)={just=center} "Timepoint"; /* 5) JMH 24Jun2014 */
    define statord       / order order = internal noprint;
    define stat          / display style={just=left
cellwidth=/*1.5*/2.3cm} style(header)={just=center} "Statistic"; /* 5)
JMH 24Jun2014 */
    define r1            / display style={just=/*d*/CENTER
cellwidth=1.5cm} style(header)={just=center}; /* 5) JMH 24Jun2014 */
    define r2            / display style={just=/*d*/CENTER
cellwidth=1.5cm} style(header)={just=center};
    define r3            / display style={just=/*d*/CENTER
cellwidth=1.5cm} style(header)={just=center};
    define c1            / display style={just=/*d*/CENTER
cellwidth=1.5cm} style(header)={just=center};
    define c2            / display style={just=/*d*/CENTER
cellwidth=1.5cm} style(header)={just=center};

```

```

define c3 / display style={just=/*d*/CENTER
cellwidth=1.5cm} style(header)={just=center}; /* 5) JMH 24Jun2014 */

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

break after page / page;

compute after variable;
line " ";
endcomp;

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

/* compute after page/style={just=left cellwidth=5cm
protectspecialchars=off};*/ /* 6) JMH 01Aug2014 */
/* line "&linebot" ;*/
/* 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."}; /* 6) JMH 01Aug2014 */
line 'Note: CC = Conventional cigarettes; SA = Smoking
abstinence; THS = Tobacco Heating System.';
/*LINE "Note: Geo 95% CI represents the 95% CI of the geometric
mean."; *//* 4) JMH 19Jun2014 */
LINE 'Note: Geometric: mean, CV% and 95%
confidence interval (CI) are reported.'; /* 5) JMH 24Jun2014 */
/* line 'Note: * % change from baseline is defined as the last
assessment prior to 06:29 AM on Day 1';*/
/*LINE "Note: * % change from baseline, where
baseline is defined as the last assessment prior to 06:29 AM on Day
1.";*/ /* 1) JMH 15May2014 */
line "Note: * % change from baseline, where 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."; /* 7) JR
18Sep2014 */

%if &nsum. ge 1 %then %do;
line 'Note: LOQ = XX %'; /*Update this value if required*/
%end;
LINE "Note: No BLOQ values recorded for this parameter."; /* 9) JMH
25Sep2014 */
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_03_06.lst" new;
run;

proc contents data = table.T_15_02_03_06 varnum;
run;
ods listing close;
proc printto ; run;
*=====;
*  END OF PROGRAM CODE                               ;
*=====;
```