

```
/*=====
=====*
```

```
| Covance Study Number   : 000000106343          |
| Program Name           : t_anl_mceq.sas         |
| Purpose                 : Analysis of MCEQ      |
|                         |                        |
| Input Data              : ADQSPA                 |
| Output Data             : T_15_02_04_55_01, T_15_02_04_55_02 |
| Macros Called           : m_printto, m_logchk    |
| Originally Performed by : kpothuri              |
| Date                    : 12MAY2015             |
|                         |                        |
```

```
|=====
=====|
```

```
| Modification History    |
|-----|
| Modified by            : |
| Modification Date      : |
| Modification Description : |
```

```
+=====
=====*/
```

```
options notes source source2 nofullstimer validvarname=upcase missing=' ' NOQUOTELENMAX;
```

```
ods _all_ close;
```

```
ods listing;
```

```
%m_printto(route=YES);
```

```
*=====;
```

```
* START OF PROGRAM CODE          ;
```

```
*=====;
```

```
proc datasets lib=work nolist memtype=data kill; quit;
```

```
%let TFL_Part=%scan(&_amp;_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", ""));
```

```
        call symput('TFLprg',reverse(scan(strip(reverse(compress("&_SASPROGRAMFILE", ""))),1,"/")));
```

```
run;
```

```
*MCEQ;
```

```
data MCEQ;
```

```
    set adam.ADQSPA;
```

```
    where DTYPE ne "LOCF" and ANL01FL="Y" and
```

```
        propcase(avisit) in ("Day 1", "Day 2", "Day 3", "Day 4", "Day 5", "Day 30", "Day 60", "Day 90") and PARAMTYP="DERIVED";
```

```
run;
```

```
*MCEQ counts;
```

```

%macro count (wh=, pop=);

proc sort data=MCEQ out=MCEQ_mx&pop (where=(BASE ne . and UCPDGR1 ne " and &wh)); by trtp
param avisit usubjid; run; *for proc mixed datasets;

proc freq data=MCEQ_mx&pop noprint;

    table trtp*param*paramn*avisit*avisitn/out=f_MCEQ (drop=percent);

run;

proc sort data=f_MCEQ; by param avisit; run;

proc transpose data=f_MCEQ out=t_MCEQ&pop (drop=_:);

    id trtp;

    var count;

    by param paramn avisit avisitn;

run;

%mend count;

*PP set;

%count (wh=%str(PPROT1FL="Y" and avisit in ("Day 1", "Day 2", "Day 3", "Day 4", "Day 5")), pop=1);

%count (wh=%str(PPROT2FL="Y" and avisit = "Day 30"), pop=2);

%count (wh=%str(PPROT3FL="Y" and avisit = "Day 60"), pop=3);

%count (wh=%str(PPROT4FL="Y" and avisit = "Day 90"), pop=4);


*FAS set;

%count (wh=%str(FASFL="Y"), pop=_f);


*PP set;

data count_pp (drop=THSM2_2 MCC rename=(THS_=THSM2_2 MCC_=MCC));

length THS_ MCC_ $18 _name_ $10;

set t_MCEQ1 t_MCEQ2 t_MCEQ3 t_MCEQ4;

```

```

    THS_=put(THSM2_2, best.);

    MCC_=put(MCC, best.);

    num=0.5;

    _name_="n";

run;

data mix; *all pp set days;

    set MCEQ_mx1 MCEQ_mx2 MCEQ_mx3 MCEQ_mx4;

run;

*FAS set;

data count_f (drop=THSM2_2 MCC rename=(THS_=THSM2_2 MCC_=MCC));

length THS_ MCC_ $18 _name_ $10;

    set t_MCEQ_f;

    THS_=put(THSM2_2, best.);

    MCC_=put(MCC, best.);

    num=0.5;

    _name_="n";

run;

*MCEQ stats - PP and FAS sets;

%macro p (mx=, pop=);

proc sort data=&mx; by param paramn avisit avisitn; run;

```

```

proc mixed data=&mx;

  by param paramn avisit avisitn;

  Class trtp sex UCPDGR1;

  Model aval = base sex UCPDGR1 trtp;

  lsmeans trtp / pdiff =control('mCC') alpha=0.05 cl;

  ods output lsmeans=lsmeans (where=(trtp ne "SA") keep=param paramn avisit avisitn trtp lower
upper estimate); *each arm;

  ods output diffs=diffs (where=(trtp="THSm2.2") keep=param paramn avisit avisitn trtp _trtp lower
upper estimate); *differences;

run;


*lsmean and C.I. for differences;

data diffs_;

length labnum $10;

  set diffs;

  format lower upper estimate;

  if trtp="THSm2.2" then labnum="MCC";

run;

data LSM_CL;

  set diffs_;

  if paramn in (19,20) then do;

    lsmean_=put(round(estimate,0.1),12.1);

    CL=compress(put(floor(10*Lower)/10,12.1))||',
'| |compress(put(ceil(10*Upper)/10,12.1));

    end;

  else do;

```

```

lsmean_=put(round(estimate,0.01),12.2);

Cl=compress(put(floor(100*Lower)/100,12.2))||',
'|compress(put(ceil(100*Upper)/100,12.2));

end;

run;

proc transpose data=LSM_CL out=t_LSM_CL (rename=(mcc=ths_mcc_diff));

id labnum;

var lsmean_ Cl;

by param paramn avisit avisitn;

run;

*figure data;

data fig&pop;

length difftyp $25;

set LSM_CL;

if labnum="SA" then difftyp="THSm2.2vs.SA";

if labnum="MCC" then difftyp="THSm2.2vs.mCC";

keep param paramn avisit avisitn lower upper estimate difftyp;

run;

*lsmean, C.I.;

proc sort data=lsmeans out=lsmeans_ nodupkey; by _all_; run;

data lsmeans_;

set lsmeans_;

format lower upper estimate;

```

```

run;

data stat;

    set lsmeans_;

    if paramn in (19,20) then do;

        lsmean_=put(round(estimate,0.1),12.1);

        CI=compress(put(floor(10*Lower)/10,8.1)||', '||compress(put(ceil(10*Upper)/10,8.1)));

    end;

    else do;

        lsmean_=put(round(estimate,0.01),12.2);

        CI=compress(put(floor(100*Lower)/100,8.2)||', '||compress(put(ceil(100*Upper)/100,8.2)));

    end;

run;

proc transpose data=stat out=t_stat;

    id trtp;

    var lsmean_ CI;

    by param paramn avisit avisitn;

run;

*put stats together;

proc sort data=t_LSM_CL; by param paramn avisit avisitn _name_; run;

proc sort data=t_stat; by param paramn avisit avisitn _name_; run;

data p;

    merge t_LSM_CL t_stat;

    by param paramn avisit avisitn _name_;

```

```

        if _name_="LSMEAN_" then do; _name_="LS Mean"; num=1; end;

        if _name_="CI" then do; _name_="95% CI"; num=2; end;

run;

proc sort data=p; by paramn avisitn num; run;

data form;

        set count&pop p;

run;

proc sort data=form; by paramn avisitn num; run;

data form_1;

length label $60;

        set form;

        by paramn avisitn num;

        if not first.avisitn then avisit="";

        label=avisit;

run;

data dummy;

length param $100 label $60;

        num=0.2; param="Aversion Subscale"; paramn=18; label="Aversion Subscale"; AVISITN=101;
output;

        num=0.2; param="Craving Reduction Subscale"; paramn=19; label="Craving Reduction
Subscale"; AVISITN=101; output;

        num=0.2; param="Enjoyment of Respiratory Tract Sensation Subscale"; paramn=20;
label="Enjoyment of Respiratory Tract Sensation Subscale"; AVISITN=101; output;

        num=0.2; param="Psychological Reward Subscale"; paramn=21; label="Psychological Reward
Subscale"; AVISITN=101; output;

```



```
num=0.2; param="Smoking Satisfaction Subscale"; paramn=22; label="Smoking Satisfaction Subscale"; AVISITN=101; output;
```

```
num=0.2; param="Aversion Subscale"; paramn=18; label="Aversion Subscale (cont...)"; AVISITN=105; output;
```

```
num=0.2; param="Craving Reduction Subscale"; paramn=19; label="Craving Reduction Subscale (cont...)"; AVISITN=105; output;
```

```
num=0.2; param="Enjoyment of Respiratory Tract Sensation Subscale"; paramn=20; label="Enjoyment of Respiratory Tract Sensation Subscale (cont...)"; AVISITN=105; output;
```

```
num=0.2; param="Psychological Reward Subscale"; paramn=21; label="Psychological Reward Subscale (cont...)"; AVISITN=105; output;
```

```
num=0.2; param="Smoking Satisfaction Subscale"; paramn=22; label="Smoking Satisfaction Subscale (cont...)"; AVISITN=105; output;
```

```
run;
```

```
data comb;
```

```
set dummy form_1;
```

```
run;
```

```
proc sort data=comb; by paramn avisitn num; run;
```

```
data final&pop;
```

```
set comb;
```

```
if paramn=18 and avisitn in (101, 102, 103, 104) then pageord=1;
```

```
if paramn=18 and avisitn in (105, 130, 160, 190) then pageord=2;
```

```
if paramn=19 and avisitn in (101, 102, 103, 104) then pageord=3;
```

```
if paramn=19 and avisitn in (105, 130, 160, 190) then pageord=4;
```

```
if paramn=20 and avisitn in (101, 102, 103, 104) then pageord=5;
```

```
if paramn=20 and avisitn in (105, 130, 160, 190) then pageord=6;
```

```
if paramn=21 and avisitn in (101, 102, 103, 104) then pageord=7;
```

```

        if paramn=21 and avisitn in (105, 130, 160, 190) then pageord=8;

        if paramn=22 and avisitn in (101, 102, 103, 104) then pageord=9;

        if paramn=22 and avisitn in (105, 130, 160, 190) then pageord=10;

run;

%mend p;

%p (mx=mix, pop=_pp);

%p (mx=MCEQ_mx_f, pop=_f);


%let l_name = %str(L_15_04_04_55_01);

%let t_title_l = %nrbrquote(Listing 15.4.4.55.1 Analysis of MCEQ Subscales - PP Set);


ods rtf

file="/cvn/projects/prj/data/000000106343/TFL/dev/Tables/&l_name..rtf";

title "&t_title_l";

options orientation=landscape;

%p (mx=mix, pop=_pp);

ods rtf close;


%let l_name2 = %str(L_15_04_04_55_02);

%let t_title_2 = %nrbrquote(Listing 15.4.4.55.2 Analysis of MCEQ Subscales - FAS);


ods rtf

file="/cvn/projects/prj/data/000000106343/TFL/dev/Tables/&l_name2..rtf";

title "&t_title_2";

```

```
options orientation=landscape;
```

```
%p (mx=MCEQ_mx_f, pop=_f);
```

```
ods rtf close;
```

```
*Figure datasets;
```

```
data tflds.T_15_02_04_55_01_F;
```

```
    set fig_pp;
```

```
run;
```

```
data tflds.T_15_02_04_55_02_F;
```

```
    set fig_f;
```

```
run;
```

```
%macro anlout (din=, tfl=, tabname=);
```

```
%let tflno=&tfl.;
```

```
proc sort data=&din; by paramn avisitn num; run;
```

```
data tflds.&tflno;
```

```
    set &din end=last;
```

```
    by pageord;
```

```
    if last then call symputx("page", pageord);
```

```
run;
```

```
%put &page;
```

```
/* Standard - leave this */
```

```
options number nodate orientation=landscape 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;
```

```
/* Standard - macro for paging */
```

```
%macro outrtf(blankn=130, halfblk=N);
```

```
%if &halfblk=N %then %let halfblk=;
```

```
%else %if &halfblk=Y %then %let halfblk=~;
```

```
ods path stdlib.t106343 (read) ;
```

```
ods results off;
```

```
ods rtf toc_data file="/cvn/projects/prj/data/000000106343/TFL/&TFL_Part./Tables/&tflno..rtf"
```

```
style=t106343 startpage=yes headery=1440 footery=1440 ;
```

```
ods noproctitle;
```

```
%do i=1 %to &page;
```

```
title ;
```

```
footnote;
```

```

%let wd=0;

ods proclabel = ' ';


data comp;

    set tflds.&tflno end=eof;

        where pageord=&i;


    /* Amend title as needed */

        _firtitl="&tabname";

        _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 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;

/* Update with your variables as needed */

proc report data = comp headline headsip nowd split = '$' %if &i=1 %then %do; contents=' ' %end;
%else %do; contents="" %end;;;

    column pageord avisitn label _name_ THSM2_2 MCC THS_MCC_DIFF;

        define pageord / order order = internal noprint;

        define avisitn / order order = internal noprint;

        define label / "Variable" display style={asis=on just=left cellwidth=3.0cm}
style(header)={just=left};

        define _name_ / "Statistic" display style={just=left cellwidth=1.2cm} style(header)={just=left};

        define THSM2_2 / "THSm2.2" display style={just=c cellwidth=1.2cm}
style(header)={just=center} ;

        define MCC / "mCC" display style={just=c cellwidth=1.2cm}
style(header)={just=center};

        define THS_MCC_DIFF / "THSm2.2 - mCC$ Difference" display style={just=c
cellwidth=1.4cm} style(header)={just=center};

    break after pageord / page;

    compute after avisitn;

        line " ";

    endcomp;

    compute before pageord / 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."};
```

```
line 'Note: Adjusted least squares (LS) means and confidence intervals (CIs) from an  
ANCOVA model conducted with baseline value, study arm, sex and mCC consumption reported at  
screening as fixed effect factors.';
```

```
line 'Note: mCC = Menthol conventional cigarettes; THSm2.2 = Tobacco Heating System  
2.2 Menthol.';
```

```
line ";
```

```
line 'Appendix 15.3.6.16';
```

```
line "Study ID: ZRHM-REXA-08-US Program: &TFLprg Status: &status"  
&_blankn.*"\~\~" "&sysdate" &_blankn.*"\~\~" "(Page &i of &page)";
```

```
endcomp;
```

```
run;
```

```
%end;
```

```
ods rtf close;
```

```
ods results on;
```

```
ods path sashelp.tmplmst (read);
```

```
%mend ;
```

```
%outrtf(blankn=36, halfblank=N);
```

ods listing;

%mend anlout;

%anlout (din=final_pp, tfl=%str(T_15_02_04_55_01), tabname=%str(Table 15.2.4.55.1 Analysis of
MCEQ Subscales - PP Set));

%anlout (din=final_f, tfl=%str(T_15_02_04_55_02), tabname=%str(Table 15.2.4.55.2 Analysis of
MCEQ Subscales - FAS));

*=====;

* END OF PROGRAM CODE ;

*=====;

%m_logchk;