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

```
| Covance Study Number   : 000000106343          |
| Program Name           : t_anl_mnws.sas         |
| Purpose                 : Analysis of MNWS      |
|                         |                        |
| Input Data              : ADQSND                 |
| Output Data             : T_15_02_04_57_01, T_15_02_04_57_02 |
| Macros Called           : m_printto, m_logchk    |
| Originally Performed by : kpothuri              |
| Date                    : 12MAY2015             |
|                         |                        |
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| Modification History    |
|-----|
```

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

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

```
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(&_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;

*MNWS;

data MNWS;
    set adam.ADQSD;
    where DTYPE ne "LOCF" and ANL01FL="Y" and
        propcase(avisit) in ("Day 2", "Day 3", "Day 4", "Day 5", "Day 6/Discharge Confinement",
"Day 30", "Day 60", "Day 90")
        and paramcd="MNWSRWDS";
run;

proc sort data=mnws; by usubjid avisitn; run;

```

```

%macro count (wh=, pop=);

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

proc freq data=MNWS_mx&pop noprint;

    table trtp*avisit*avisitn/out=f_MNWS (drop=percent);

run;

proc sort data=f_MNWS; by avisit avisitn; run;

proc transpose data=f_MNWS out=t_MNWS&pop (drop=_:);

    id trtp;

    var count;

    by avisit avisitn;

run;

%mend count;

*PP set;

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

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

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

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


*FAS set;

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


*PP set;

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

```

```
length SA_ THS_ MCC_ $18 _name_ $10;

    set t_MNWS1 t_MNWS2 t_MNWS3 t_MNWS4;

    SA_=put(SA, best.);

    THS_=put(THSM2_2, best.);

    MCC_=put(MCC, best.);

    num=0.5;

    _name_="n";

run;
```

```
data mix; *all pp set days;

    set mnws_mx1 mnws_mx2 mnws_mx3 mnws_mx4;

run;
```

```
*FAS set;

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

length THS_ MCC_ SA_ $18 _name_ $10;

    set t_MNWS_f;

    SA_=put(SA, best.);

    THS_=put(THSM2_2, best.);

    MCC_=put(MCC, best.);

    num=0.5;

    _name_="n";

run;
```

```

*MNWS 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;

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

    ods output lsmeans=lsmeans (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="mCC" then labnum="MCC";

        else labnum="SA";

run;

data LSM_CL;

    set diffs_;

```

```

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

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

run;

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

    id labnum;

    var lsmean_ Cl;

    by param paramn avisit avisitn;

run;


*figure data;

data fig&pop;

length difftyp $13;

    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_;

    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));

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 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 avisitn num; run;

data form;

```

```

        set count&pop p;

run;

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

data form_1;

    set form;

    by avisitn num;

    if not first.avisitn then avisit="";

run;


data dummy;

length param $100 avisit $40;

    num=0.2; param="MNWS-R withdrawal score"; paramn=16; avisit="MNWS-R withdrawal score";
    AVISITN=102; output;

    num=0.2; param="MNWS-R withdrawal score"; paramn=16; avisit="MNWS-R withdrawal score
(cont...)"; AVISITN=106; output;

run;


data comb;

    set dummy form_1;

run;

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


data final&pop;

    set comb;

    if avisitn in (102, 103, 104, 105) then pageord=1;

    if avisitn in (106, 130, 160, 190) then pageord=2;

```



```

run;

%mend p;

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

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


%let l_name = %str(L_15_04_04_57_01);

%let t_title_l = %nrbrquote(Listing 15.4.4.57.1 Analysis of MNWS Total Scores - 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_57_02);

%let t_title_2 = %nrbrquote(Listing 15.4.4.57.2 Analysis of MNWS Total Scores - FAS);


ods rtf

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

title "&t_title_2";

options orientation=landscape;

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

```

```
ods rtf close;
```

```
*Figure datasets;
```

```
data tflds.T_15_02_04_57_01_F;
```

```
    set fig_pp;
```

```
run;
```

```
data tflds.T_15_02_04_57_02_F;
```

```
    set fig_f;
```

```
run;
```

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

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

```
proc sort data=&din; by 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 headskip nowd split = '$' %if &i=1 %then %do; contents=' ' %end;
%else %do; contents="" %end;;;

    column pageord avisitn avisit _name_ THSM2_2 mcc sa THS_MCC_DIFF THS_SA_DIFF;

    define pageord / order order = internal noprint;

    define avisitn / order order = internal noprint;

    define avisit /"Variable" display style={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 sa /"SA" 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};

    define THS_SA_DIFF /"THSm2.2 - SA$ 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; SA = Smoking abstinence; THSm2.2 =
Tobacco Heating System 2.2 Menthol.';

    line ";

    line 'Appendix 15.3.6.15';

    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, halfblnk=N);
```

```
ods listing;
```

```
%mend anlout;
```

```
%anlout (din=final_pp, tfl=%str(T_15_02_04_57_01), tabname=%str(Table 15.2.4.57.1 Analysis of  
MNWS Total Scores - PP Set));
```

```
%anlout (din=final_f, tfl=%str(T_15_02_04_57_02), tabname=%str(Table 15.2.4.57.2 Analysis of  
MNWS Total Scores - FAS));
```

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

```
* END OF PROGRAM CODE ;
```

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

```
%m_logchk;
```