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*****;
* Project          : ZRHM-REXA-07-JP
*
* Program name     : T15020441.sas
*
* Author           : L. Yan
*
* Date created      : 05/20/2015
*
* Purpose          : Table T15020441
*
* Revision History :
*
* Date            Author      Ref      Revision (Date in YYYYMMDD format)
*
*****;

%let prgname=T15020441_ZRHM_REXA_07_JP_V1;
options mprint;

options sasautos=("W:\pmp07\macros" sasautos) notes;
%init(delivery=9);

%titlecsv(prgname=&prgname., version=3);

%put &title1;
%put &title2;
%put &APPENDIX;
%put &endpoint;
%put &outname.;
%put &loutname.;
%put &lttitle1;

options missing="";

%macro cal_sumary_pvalue(where=, outnum=, var=, in=, pflg=, decimal=1);

proc sort data=&in. out=anadt_&outnum.;
by usubjid;
where &where. ;
run;

proc sort data=anadt_&outnum.;
by trtcd;
run;

proc means data = anadt_&outnum. noprint;
by trtcd;
var &var.;
output out=xlab_&outnum. n=n mean=mean median=med std=sd min=min max=max q1=q1 q3=q3 lclm=lclm uclm=uclm;
run;

data xlab_&outnum.;
set xlab_&outnum.;
n1 = trim(left(compress(put(n, 8.))));
%if &decimal=1 %then %do;
if sd > . then mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' ('||trim(left(compress(put(ceil(sd*1000)/1000, 8.%eval(&decimal+2))))))||')';
else mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' (NA)';
ci1=trim(left(compress(put(floor(lclm*100)/100, 8.%eval(&decimal+1))))||', '||trim(left(compress(put(ceil(uclm*100)/100, 8.%eval(&decimal+1))))));
%end;
%if &decimal=0 %then %do;
if sd > . then mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' ('||trim(left(compress(put(ceil(sd*100)/100, 8.%eval(&decimal+2))))))||')';
else mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' (NA)';
ci1=trim(left(compress(put(floor(lclm*10)/10, 8.%eval(&decimal+1))))||', '||trim(left(compress(put(ceil(uclm*10)/10, 8.%eval(&decimal+1))))));
%end;

median1 = trim(left(compress(put(med, 8.%eval(&decimal+1)))));
q1q3 = trim(left(compress(put(q1, 8.%eval(&decimal+1))))||', '||trim(left(compress(put(q3, 8.%eval(&decimal+1))))));
;
min1 = trim(left(compress(put(min, 8.%eval(&decimal+0))))||', '||trim(left(compress(put(max, 8.%eval(&decimal+0))))));
run;

proc means data = anadt_&outnum. noprint;
by trtcd;
var logaval;
output out=xlab1_&outnum. n=n mean=mean lclm=lclm uclm=uclm std=std;
run;

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data xlab1_&outnum. ;
set xlab1_&outnum. ;
  Estimate1 = exp(mean); /* Ratio of geometric mean */
  LowerCL   = exp(lclm); /* 95% CI lower bound */
  UpperCL   = exp(uclm); /* 95% CI upper bound */
  CVperc=100*sqrt(exp(std**2)-1);
run;

data xlab1_&outnum.;
length geomean geoci $100;
set xlab1_&outnum.;
geomean=strip(put(Estimate1, 8.2))||" ("||strip(put(ceil(CVperc*100)/100, 8.2)) ||")";
geoci=strip(put(floor(LowerCL*100)/100, 8.2))||", "||strip(put(ceil(UpperCL*100)/100, 8.2));
keep trtcd geomean geoci;
run;

proc sort data=xlab1_&outnum.;
by trtcd;
run;

proc sort data=xlab_&outnum.;
by trtcd;
run;

data xlab_&outnum.;
merge xlab_&outnum.(in=a) xlab1_&outnum.;
by trtcd;
run;

proc transpose data = xlab_&outnum. out=xlab_1_&outnum.;
  id trtcd;
  var n1 /*geomean geoci*/ MEDIAN1 Q1Q3 MIN1 MEAN1 ci1;
run;

data temp;
length _name_ _1 _2 _3 ord1 $100;
ord1="&outnum";
ordnum=input(ord1, best.);
_name_="";
_1="";
_2="";
_3="";
output;
run;

data rep_&outnum.;
length _name_ _1 _2 _3 ord1 $100;
set temp xlab_1_&outnum.;
ord1="&outnum";
ordnum=input(ord1, best.);
if upcase(_name_)="N1" then do; _name_="n"; sord=0; end;
if upcase(_name_)="GEOMEAN" then do; _name_="Geometric Mean (CV%)"; sord=1; end;
if upcase(_name_)="GEOCI" then do; _name_="95% CI of Geometric Mean"; sord=2; end;

if upcase(_name_)="MEAN1" then do; _name_="Mean (SD)"; sord=2.1; end;
if upcase(_name_)="CI1" then do; _name_="95% CI"; sord=2.2; end;
if upcase(_name_)="MEDIAN1" then do; _name_="Median"; sord=5; end;
if upcase(_name_)="Q1Q3" then do; _name_="Q25, Q75"; sord=6; end;
if upcase(_name_)="MIN1" then do; _name_="Min, Max"; sord=7; end;
run;

data rep;
set rep rep_&outnum.;
run;

%mend;

%macro cal_sumary_pvalue1(where=, outnum=, var=, in=, pflg=, decimal=1);

proc sort data=&in. out=anadt_&outnum.;
by usbjid;
where &where. ;
run;

proc sort data=anadt_&outnum.;
by trtcd;
run;

proc means data = anadt_&outnum. noprint;
by trtcd;
var &var.;
output out=xlab_&outnum. n=n mean=mean median=med std=sd min=min max=max q1=q1 q3=q3 lclm=lclm uclm=uclm;
run;

data xlab_&outnum.;

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set xlab_&outnum.;
  n1 = trim(left(compress(put(n, 8.))));
  %if &decimal=1 %then %do;
  if sd > . then mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' ('||trim(left(compress(put(ceil(sd*1000)/1000, 8.%eval(&decimal+2))))))||')';
  else mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' (NA)';
  ci1=trim(left(compress(put(floor(lclm*100)/100, 8.%eval(&decimal+1))))||', '||trim(left(compress(put(ceil(uc1m*100)/100, 8.%eval(&decimal+1))))));
  %end;
  %if &decimal=0 %then %do;
  if sd > . then mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' ('||trim(left(compress(put(ceil(sd*1000)/100, 8.%eval(&decimal+2))))))||')';
  else mean1 = (trim(left(compress(put(mean, 8.%eval(&decimal+1))))))||' (NA)';
  ci1=trim(left(compress(put(floor(lclm*10)/10, 8.%eval(&decimal+1))))||', '||trim(left(compress(put(ceil(uc1m*10)/10, 8.%eval(&decimal+1))))));
  %end;

  median1 = trim(left(compress(put(med, 8.%eval(&decimal+1)))));
  q1q3 = trim(left(compress(put(q1, 8.%eval(&decimal+1))))||', '||trim(left(compress(put(q3, 8.%eval(&decimal+1))))));
;
  min1 = trim(left(compress(put(min, 8.%eval(&decimal+0))))||', '||trim(left(compress(put(max, 8.%eval(&decimal+0))))));
run;

proc transpose data = xlab_&outnum. out=xlab_1_&outnum.;
  id trtcd;
  var n1 MEDIAN1 Q1Q3 MIN1 MEAN1 ci1;
run;

data temp;
length _name_ _1 _2 _3 ord1 $100;
ord1="&outnum";
ordnum=input(ord1, best.);
_name_="";
_1="";
_2="";
_3="";
output;
run;

data rep_&outnum.;
length _name_ _1 _2 ord1 $100;
set temp xlab_1_&outnum.;
ord1="&outnum";
ordnum=input(ord1, best.);
if upcase(_name_)="N1" then do; _name_="n"; sord=0; end;
if upcase(_name_)="GEOMEAN" then do; _name_="Geometric Mean (CV%)"; sord=1; end;
if upcase(_name_)="GEOCI" then do; _name_="95% CI of Geometric Mean"; sord=2; end;

if upcase(_name_)="MEAN1" then do; _name_="Mean (SD)"; sord=2.1; end;
if upcase(_name_)="CI1" then do; _name_="95% CI"; sord=2.2; end;
if upcase(_name_)="MEDIAN1" then do; _name_="Median"; sord=5; end;
if upcase(_name_)="Q1Q3" then do; _name_="Q25, Q75"; sord=6; end;
if upcase(_name_)="MIN1" then do; _name_="Min, Max"; sord=7; end;
run;

data rep;
set rep rep_&outnum.;
run;

%mend;

%macro mainloop(flg=, outn=, where=);

proc sort data=adam.adsl out=trt;
by usbjid;
where &flg="Y";
run;

data trt;
set trt;
if TRT01A="THSm2.2" then trtcd=1;
else if TRT01A="mCC" then trtcd=2;
else if TRT01A="SA" then trtcd=3;
run;

data anald;
set adam.Adqspa;
if trta in ("mCC" "THSm2.2" "SA") and aval>. and /*paramcd in ("AAVGDI", "AAVGII", "AAVGPCI", "AAVGPMI", "AAVGQCI", "AAVGQMI", "AAVGVI", "AAVGWI", "ANPC",
"APFEQ", "APTI", "ASMINI", "ATDFI", "ATDI", "ATII", "ATVOL", "ATWI") and*/ avisitn>=100 and anl01fl="Y" and &flg="Y"
and (&where.) and PARCAT1N=2;
run;

data anald;

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set anald;
if aval>0 then logaval=log(aval);
run;

proc sort data=anald out=check(keep=paramn avisitn avisit) nodupkey;
by paramn avisitn avisit;
run;

data trt_1;
set trt;
run;

data anald;
set anald;
if TRTA="THSm2.2" then trtcd=1;
else if TRTA="mCC" then trtcd=2;
else if TRTA="SA" then trtcd=3;
run;

data check;
set check;
ord=_n_;
run;

%*cal_summary_pvalue(where=1, outnum=1, var=aval, in=anald, pflg=1);

data rep;
run;

proc sort data=trt_1 nodupkey;
by trtcd usubjid;
run;

proc freq data = trt_1 noprint;
tables trtcd/ out= denom;
run;

%global trt1_&outn. trt2_&outn. trt3_&outn.;
data _null_;
set denom end=eof;

retain total 0;

total = total+count;

if trtcd= 1 then do;
call symput("trt1_&outn.", trim(left(put(count,8)))));
end;
if trtcd= 2 then do;
call symput("trt2_&outn.", trim(left(put(count,8)))));
end;
if trtcd= 3 then do;
call symput("trt3_&outn.", trim(left(put(count,8)))));
end;

run;

data _null_;
set check;
call execute ('%cal_summary_pvalue(where=%str(avisitn='||avisitn||' and paramn='||paramn||' ), outnum='||ord||', var
=aval, in=anald);');
run;

data rep1;
set rep;
run;

data rep;
run;

data _null_;
set check;
if avisitn>100;
call execute ('%cal_summary_pvalue1(where=%str(avisitn='||avisitn||' and paramn='||paramn||' ), outnum='||ord||', va
r=PCHG, in=anald, decimal=1);');
run;

data rep2;
set rep;
rename _1=_4 _2=_5 _3=_6;
run;

proc sort data=rep1;
by ordnum sord;
run;

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proc sort data=rep2;
by ordnum sord;
run;

data frep;
merge rep1 rep2;
by ordnum sord;
run;

data frep;
set frep;
ord=ORDNUM;
run;

data frep;
set frep;

%do i = 1 %to 100;
if (&i-1)*1<ordnum<=&i*1 then pagen=&i;
%end;

run;

data frep;
set frep;
space=" ";
run;

data frep&outn.;
merge frep(in=a) check;
by ord;
if a;
if avisitn>.;
run;

data smalln&outn.;
set frep&outn.;
if _name_="n";
run;

data smalln&outn.;
set smalln&outn.;
_name_="Missing, n(%)";
sord=0.1;
if _1 ne "" then _1=strip(put((&trt1_&outn.-input(_1, best.)), 8.0))||" ("||strip(put((&trt1_&outn.-input(_1, best.))*
100/&trt1_&outn., 8.1))||")";
if _2 ne "" then _2=strip(put((&trt2_&outn.-input(_2, best.)), 8.0))||" ("||strip(put((&trt2_&outn.-input(_2, best.))*
100/&trt2_&outn., 8.1))||")";
if _3 ne "" then _3=strip(put((&trt3_&outn.-input(_3, best.)), 8.0))||" ("||strip(put((&trt3_&outn.-input(_3, best.))*
100/&trt3_&outn., 8.1))||")";

if _4 ne "" and input(_4, best.)>0 then _4=strip(put((&trt1_&outn.-input(_4, best.)), 8.0))||" ("||strip(put((&trt1_&
outn.-input(_4, best.))*100/&trt1_&outn., 8.1))||")";
else _4="";
if _5 ne "" and input(_5, best.)>0 then _5=strip(put((&trt2_&outn.-input(_5, best.)), 8.0))||" ("||strip(put((&trt2_&
outn.-input(_5, best.))*100/&trt2_&outn., 8.1))||")";
else _5="";
if _6 ne "" and input(_6, best.)>0 then _6=strip(put((&trt3_&outn.-input(_6, best.)), 8.0))||" ("||strip(put((&trt3_&
outn.-input(_6, best.))*100/&trt3_&outn., 8.1))||")";
else _6="";

run;

data frep&outn.;
set frep&outn. smalln&outn.;
run;

data frep&outn.;
set frep&outn.;
if _1 in ("0 (0.0)" " ") and _2 in ("0 (0.0)" " ") and _4 in ("0 (0.0)" " ") and _5 in ("0 (0.0)" " ") /*and _3 in (
"0 (0.0)" " ") and _6 in ("0 (0.0)" " ")*/ then delete;
run;

data frep&outn.;
length avisit $200;
set frep&outn.;
if _1="0 (0.0)" then _1="0";
if _2="0 (0.0)" then _2="0";
if _4="0 (0.0)" then _4="0";
if _5="0 (0.0)" then _5="0";

if _3="0 (0.0)" then _3="0";
if _6="0 (0.0)" then _6="0";

if _4=" " then _4="";
if _5=" " then _5="";
if _6=" " then _6="";

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if _4=" (NA)" then _4="";
if _5=" (NA)" then _5="";
if _6=" (NA)" then _6="";

avisit=propcase(avisit);

if AVISIT="Day 0" then avisit="Baseline";

run;

proc sort data=frep&outn.;
by pagen paramn avisitn avisit sord;
run;

%mend;

%mainloop(flg=PPROT1FL, outn=1, where=%str(100<=avisitn<=106 and anl01fl="Y"));
%mainloop(flg=PPROT2FL, outn=2, where=%str(avisitn in (100, 130) and anl01fl="Y"));
%mainloop(flg=PPROT3FL, outn=3, where=%str(avisitn in (100, 160) and anl01fl="Y"));
%mainloop(flg=PPROT4FL, outn=4, where=%str(avisitn in (100, 190, 191) and anl01fl="Y"));

proc sort data=anald out=fmt(keep=paramn param) nodupkey;
by paramn param;
run;

data fmt;
set fmt;
fmtname="grp";
start=paramn;
label="Parameter: "||strip(param);
run;

proc format cntlin=fmt;
run;

data odata.&prgname.;
length avisit $200;
set frep1 (in=a) frep2 (in=b) frep3 (in=c) frep4 (in=d);
if a then group="PPROT1FL";
if b then group="PPROT2FL";
if c then group="PPROT3FL";
if d then group="PPROT4FL";
run;

%global totalpage1;

data _null_;
set frep1 end=eof;

if eof then do;
call symput('totalpage1', trim(left(put(pagen,8)))));
end;

run;

%put totalpage1=&totalpage1;

data frep2;
set frep2;
pagen=pagen+&totalpage1.;
run;

%global totalpage2;

data _null_;
set frep2 end=eof;

if eof then do;
call symput('totalpage2', trim(left(put(pagen,8)))));
end;

run;

%put totalpage2=&totalpage2;

data frep3;
set frep3;
pagen=pagen+&totalpage2.;
run;

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%global totalpage3;

data _null_;
  set frep3 end=eof;

  if eof then do;
    call symput('totalpage3', trim(left(put(pagen,8)))));
  end;

run;

%put totalpage3=&totalpage3;

data frep4;
  set frep4;
  pagen=pagen+&totalpage3.;
run;

%global totalpage4;

data _null_;
  set frep4 end=eof;

  if eof then do;
    call symput('totalpage4', trim(left(put(pagen,8)))));
  end;

run;

%put totalpage4=&totalpage4;

data allrep;
  set frep1 (in=a) frep2 (in=b) frep3 (in=c) frep4 (in=d);
  if a then group=1;
  if b then group=2;
  if c then group=3;
  if d then group=4;
  drop pagen;
run;

proc sort data=allrep;
  by paramn group avisitn;
run;

proc sort data=allrep out=page(keep=paramn group avisitn) nodupkey;
  by paramn group avisitn;
run;

data page;
  set page;
  pagen=_n_;
run;

data allrep;
  merge allrep page;
  by paramn group avisitn;
run;

%trtrtfg(pgmname=&outname., pgmid=1, new=0, style=, bookmark=%lowcase(&outname.));

%macro reppart (where=, group=, pagen=);

proc report data=allrep headskip headline spacing=4 nowd split='- ' style=[outputwidth=100%] style(header column)=[protectspecialchars=off];
  where &where.;
  column pagen paramn avisitn avisit sord _name_ (" \bdrb\brdrs THSm2.2 (N=&trt1_1.)" _1 _4) space (" \bdrb\brdrs mCC (N=&trt2_1.)" _2 _5) space (" \bdrb\brdrs SA (N=&trt3_1.)" _3 _6);
  define pagen /order order=internal noprint;
  define paramn /order order=internal noprint;
  define avisitn /order order=internal noprint;
  define avisit /order "Time Point" flow style(column)=[cellwidth=10% just=l];
  define sord /order order=internal noprint;

  define _name_ /display "Statistic" flow style(column)=[cellwidth=10% just=l];
  define _1 /display "Raw value" flow style(column)=[cellwidth=10% just=c];
  define _4 /display "% Change(*)" flow style(column)=[cellwidth=10% just=c];
  define space /display " " flow style(column)=[cellwidth=0.5% just=c];

  define _2 /display "Raw value" flow style(column)=[cellwidth=10% just=c];
  define _5 /display "% Change(*)" flow style(column)=[cellwidth=10% just=c];

  define space /display " " flow style(column)=[cellwidth=0.5% just=c];

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define _3          /display "Raw value"      flow style(column)=[cellwidth=10% just=c];
define _6          /display "% Change(*)"    flow style(column)=[cellwidth=10% just=c];

COMPUTE after avisitn ;
LINE @1 " ";
ENDCOMP;

break after pagen/page;

compute before pagen;
line @1 " ";
endcomp;

compute before _page_ /style=[fontweight=bold fontsize=3.75];
line @1 "&title1 &title2";
line @1 " ";
LINE @1 paramn grp.;
line @1 "Product Use Time Period: Period &group.";
line @1 " ^R/RTF'\brdrb\brdrs\brdrw30\brsp20\b ' ' ";
endcomp;

compute after _page_ /style=[fontsize=1.75];
line @1 "Note: mCC = Menthol conventional cigarettes; THSm2.2 = Tobacco Heating System 2.2 Menthol.";
line @1 "Note: Percentages are based on the number of subjects indicated in the column header (N).";
line @1 "Note: * % change from baseline, where baseline is defined as the last assessment prior to first randomized prod
uct use in mCC / THS 2.2 Menthol";
line @1 "arms or the last assessment prior to 10 AM on Day 1 in the SA arm";
line @1 " ";
line @1 "&APPENDIX.";
line @1 "Study ID:ZRHM-REXA-07-JP          Program: &fprgname..sas          Status: &repversion./&fdate.          Page: &pa
gen. of &totalpage4";
endcomp;
run;

%mend;

proc sort data=page;
by pagen;
run;

data _null_;
set page;
by pagen;
call execute ('%reppart(where=%str(pagen='||pagen||'), group='||group||', pagen='||pagen||');');
run;

ods listing;
ods rtf close;

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