```
************************************************************************************************;
**  Program Name    :  adds-s002-all1-ped6.sas                                                  **;
**  Date Created    :  15Nov2021                                                                **;
**  Programmer Name :  (b) (4), (b) (6)                                                         **;
**  Purpose         :  Create adds-s002-all1-ped6                                               **;
**  Input data      :  adsl adds                                                                **;
**  Output data     :  adds-s002-all1-ped6.html                                                 **;
************************************************************************************************;
options mprint mlogic symbolgen mprint symbolgen mlogic nocenter missing=" ";
title;
footnote;

**Setup the environment**;
%let
bprot=/Volumes/app/cdars/prod/sites/cdars4/prjC459/nda2_unblinded_esub/sbla1215_esub_adam/saseng/cdisc3_0/;
%let prot=/Volumes/app/cdars/prod/sites/cdars4/prjC459/nda2_unblinded_esub/sbla1215_esub_adam/saseng/cdisc3_0;
%let codename=adds-s002-all1-ped6;

libname datvprot "&bprot.data_vai" access=readonly;
%let outlog=&prot./analysis/eSUB/logs/&codename..log;
%let outtable=&prot./analysis/eSUB/output/&codename..html;


proc printto log="&outlog." new;
run;


proc datasets library=WORK kill nolist nodetails;
quit;

/* Format */
proc format;
      value dsdecod 1="Adverse event" 3="Death" 5="Lost to follow-up" 7="Other"
            8="Physician decision" 9="Pregnancy" 11="Protocol deviation"
            13="Screen Failure" 14="Study terminated by sponsor"
            16="Withdrawal by subject"
            17="Medication error without associated adverse event"
            18="No longer meets eligibility criteria"
            25="Refused further study procedures" 26="Withdrawal by parent/guardian";
run;

/* Readin ADSL */
data g_a_dsin;
      set datvprot.ADDS;
      analysis_subset='Y';
run;

data g_adsl_dsin;
      set datvprot.adsl;
      where RANDFL eq 'Y' and AGEGR4N=1;
run;

proc sql noprint;
```

```
    create table a_dsin as select * from g_a_dsin where usubjid in (select
        distinct usubjid from g_adsl_dsin);
quit;

data __trtmap;
    length trtcode trtdecd $100;

    if 0 then
        set g_adsl_dsin(keep=TRT01PN);
    trtval=1;

    if vtype(TRT01PN)='C' then
        trtcode=tranwrd(compbl(quote("8")), ' ', '" "');
    else
        trtcode="8";
    trtdecd="BNT162b2 (30 (*ESC*){unicode 03BC}g)";
    trtvar="TRT01PN";
    trtlbl="TRT01P";
    output;
    trtval=2;

    if vtype(TRT01PN)='C' then
        trtcode=tranwrd(compbl(quote("9")), ' ', '" "');
    else
        trtcode="9";
    trtdecd="Placebo";
    trtvar="TRT01PN";
    trtlbl="TRT01P";
    output;
    trtval=3;

    if vtype(TRT01PN)='C' then
        trtcode=tranwrd(compbl(quote("8 9")), ' ', '" "');
    else
        trtcode="8 9";
    trtdecd="Total";
    trtvar="TRT01PN";
    trtlbl="TRT01P";
    output;
    stop;
run;

data g_adsl_dsin;
    set g_adsl_dsin;

    if TRT01PN in (8) then
        do;
            newtrtn=1;
            newtrt=coalescec("BNT162b2 (30 (*ESC*){unicode 03BC}g)", TRT01P);
            output;
        end;

    if TRT01PN in (9) then
        do;
```

```
            newtrtn=2;
            newtrt=coalescec("Placebo", TRT01P);
            output;
        end;

    if TRT01PN in (8 9) then
        do;
            newtrtn=3;
            newtrt=coalescec("Total", TRT01P);
            output;
        end;
run;

data g_a_dsin;
    set g_a_dsin;

    if TRT01PN in (8) then
        do;
            newtrtn=1;
            newtrt=coalescec("BNT162b2 (30 (*ESC*){unicode 03BC}g)", TRT01P);
            output;
        end;

    if TRT01PN in (9) then
        do;
            newtrtn=2;
            newtrt=coalescec("Placebo", TRT01P);
            output;
        end;

    if TRT01PN in (8 9) then
        do;
            newtrtn=3;
            newtrt=coalescec("Total", TRT01P);
            output;
        end;
run;

proc sort data=g_adsl_dsin out=_ds1;
    by usubjid newtrtn;
run;

proc sort data=g_a_dsin out=_ds2;
    by usubjid newtrtn;
run;

data final;
    merge _ds1(in=d1) _ds2(in=d2);
    by usubjid newtrtn;

    if d1;
run;

data _basetemplate(compress=no);
```

```
    length _varname $8 _cvalue $35 _direct $20 _vrlabel $200 _rwlabel
        _colabel $800 _datatyp $5 _module $8 _pr_lbl $ 200;
    array _c _character_;
    delete;
run;

data _data1;
    set final;
    where (NEWTRTN is not missing);
run;

proc sort data=_data1;
    by NEWTRTN USUBJID;
run;

data _data1;
    retain _trt 0;
    length _str $200;
    _datasrt=1;
    set _data1 end=eof;
    by NEWTRTN USUBJID;
    drop _str;
    _str=' ';
    _lastby=1;
    _dummyby=0;

    if first.NEWTRTN then
        do;

            if not missing(NEWTRTN) then
                do;
                    _trt=_trt + 1;
                end;
            _str=NEWTRT;

            if _trt > 0 then
                call symput('_trtlb'||compress(put(_trt, 4.)), trim(left(_str)));
        end;
run;

proc sql noprint;
    select compress(put(count(*), 5.) ) into :_trt1 - :_trt3 from (select distinct
        USUBJID, _trt from _data1 where NEWTRTN is not missing) group by _trt;
    select compress(put(count(*), 5.) ) into :_trt4 from (select distinct USUBJID
        from _data1 where NEWTRTN is not missing);
quit;

proc sort data=_data1 out=_bydat1(keep=_datasrt _dummyby) nodupkey;
    by _datasrt;
run;

data _bydat1;
    set _bydat1 end=eof;
    by _datasrt;
```

```
    retain _preby 0;
    drop _preby;
    _byvar1=0;

    if eof then
        do;
            call symput("_preby1", compress(put(_byvar1, 4.)));

            if 0=0 then
                output;
        end;
run;

data _bydat1;
    set _bydat1;
    by _datasrt;
    length _bycol _byindnt $50 _bylast $10;
    _bycol=" ";
    _byindnt=" ";
    _bylast=" ";
run;

proc sort data=_bydat1;
    by _datasrt;
run;

proc sort data=_data1 out=_data1;
    by _datasrt;
run;

/* Create criteria flags */
data _data1;
    set _data1;
    _event1=ifN(RANDFL in ('Y'), 1, 0);
    _event2=ifN(RANDFL eq 'Y' and (VAX101DT eq . and VAX102DT eq . and
        VAX10UDT=. and VAX201DT eq . and VAX202DT eq .), 1, 0);
    _event3=ifN(RANDFL eq 'Y' and (VAX101DT ne . or VAX102DT ne .), 1, 0);
    _event4=ifN(RANDFL eq 'Y' and VAX101DT ne . , 1, 0);
    _event5=ifN(RANDFL eq 'Y' and VAX102DT ne . and (VAX102DT<UNBLNDDT or
        UNBLNDDT=.), 1, 0);
    _event6=ifN(RANDFL eq 'Y' and DSPHASEN=26 and EOTDCDT ne . and dsdecodn not
        in (. 2) and (VAX101DT ne . or VAX102DT ne .) and (unblnddt=. or
        eotdcdt<unblnddt), 1, 0);
    _event8=ifN(RANDFL eq 'Y' and UNBLNDDT ne . and (UNBLNDDT<=M1PD2DT or
        M1PD2DT=.), 1, 0);
    _event9=ifN(RANDFL eq 'Y' and ((DSPHASEN=26 and dsdecodn=2) )
        and (unblnddt=. or astdt<unblnddt), 1, 0);
    _event10=ifN(RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not
        in (. 2) and (VAX101DT ne . or VAX102DT ne .) and (unblnddt=. or
        eosdcdt<unblnddt) and EOSDCDT ne EOTXDCDT, 1, 0);
    _event11=ifN(RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not
        in (. 2) and vax101dt ne . and ((vax101dt<=astdt and vax102dt eq .) or
        vax101dt<=astdt < vax102dt) and (unblnddt=. or eosdcdt<unblnddt) and EOSDCDT
        ne EOTXDCDT, 1, 0);
```

```
    _event12=ifN(RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not
        in (. 2) and vax101dt ne . and vax102dt ne . and (vax102dt <=astdt
        and (M1PD2DT eq . or astdt<M1PD2DT)) and (unblnddt=. or eosdcdt<unblnddt) and
        EOSDCDT ne EOTXDCDT, 1, 0);
    _event13=ifN(RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not
        in (. 2) and vax101dt ne . and vax102dt ne . and M1PD2DT ne . and M1PD2DT le
        astdt and (unblnddt=. or eosdcdt<unblnddt) and EOSDCDT ne EOTXDCDT, 1, 0);
    _event15=ifN(RANDFL eq 'Y' and (UNBLNDDT ne . or vax201dt ne .) and index(arm,
        'BNT'), 1, 0);
    _event16=ifN(RANDFL eq 'Y' and ((VAX102DT>=UNBLNDDT) or (index(VAX10u, 'BNT')
        and VAX10UDT>=UNBLNDDT)) and UNBLNDDT ne . and index(arm, 'BNT'), 1, 0);
    _event17=ifN(RANDFL eq 'Y' and ((DSPHASEN=26 and dsdecodn=2)) and (unblnddt
        ne . and astdt>=unblnddt) and index(arm, 'BNT'), 1, 0);
    _event18=ifN(RANDFL eq 'Y' and vax101dt ne . and vax102dt ne . and M6PD2DT
        ne . and (UNBLNDDT ne . or vax201dt ne .) and index(arm, 'BNT'), 1, 0);
    _event19=ifN(RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not
        in (. 2) and (VAX101DT ne . or VAX102DT ne .) and (unblnddt ne . and
        eosdcdt>=unblnddt) and index(arm, 'BNT'), 1, 0);
    _event20=ifN(RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not
        in (. 2) and (VAX101DT ne . or VAX102DT ne .) and (M6PD2DT=. or
        M6PD2DT> astdt) and (unblnddt ne . and eosdcdt>=unblnddt) and index(arm,
        'BNT'), 1, 0);
    _event21=ifN(RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not
        in (. 2) and vax101dt ne . and vax102dt ne . and M6PD2DT ne . and M6PD2DT le
        astdt and (unblnddt ne . and eosdcdt>=unblnddt) and index(arm, 'BNT'), 1, 0);
    _event23=ifN(RANDFL eq 'Y' and (UNBLNDDT ne . or vax201dt ne .) and
        index(armcd, 'PLACEBO'), 1, 0);
    _event24=ifN(RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not
        in (. 2) and (VAX201DT=. and VAX202DT=.) and (unblnddt ne . and
        eosdcdt>=unblnddt) and index(armcd, 'PLACEBO'), 1, 0);
    _event25=ifN(RANDFL eq 'Y' and index(VAX201, 'BNT') and index(armcd,
        'PLACEBO'), 1, 0);
    _event26=ifN(RANDFL eq 'Y' and index(VAX202, 'BNT') and index(armcd,
        'PLACEBO'), 1, 0);
    _event27=ifN(RANDFL eq 'Y' and DSPHASEN=7 and EOTXDCDT ne . and dsdecodn not
        in (. 2) and vax201dt ne . and index(armcd, 'PLACEBO'), 1, 0);
    _event29=ifN(RANDFL eq 'Y' and ((DSPHASEN=7 and dsdecodn=2) ) and index(armcd,
        'PLACEBO'), 1, 0);
    _event30=ifN(RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not
        in (. 2) and (VAX201DT ne . or VAX202DT ne .) and ((unblnddt ne . and
        eosdcdt>=unblnddt) or eosdcdt=eotxdcdt) and index(armcd, 'PLACEBO'), 1, 0);
    _event31=ifN(RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not
        in (. 2) and vax201dt ne . and ((vax201dt<=astdt and vax202dt eq .) or
        vax201dt<=astdt < vax202dt) and ((unblnddt ne . and eosdcdt>=unblnddt) or
        eosdcdt=eotxdcdt) and index(armcd, 'PLACEBO'), 1, 0);
    _event32=ifN(RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not
        in (. 2) and vax201dt ne . and vax202dt ne . and (vax202dt <=astdt
        and (M1PX2DT eq . or astdt<M1PX2DT)) and ((unblnddt ne . and
        eosdcdt>=unblnddt) or eosdcdt=eotxdcdt) and index(armcd, 'PLACEBO'), 1, 0);
    _event33=ifN(RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not
        in (. 2) and vax201dt ne . and vax202dt ne . and M1PX2DT ne . and M1PX2DT le
        astdt and ((unblnddt ne . and eosdcdt>=unblnddt) or eosdcdt=eotxdcdt) and
        index(armcd, 'PLACEBO'), 1, 0);
run;
```

```
/* Crit 1 */
data _anal1;
	length _EVENT1 8;
	set _data1;
	where same and _EVENT1 is not missing;
	_blcksrt=1;
	_cnt=1;
	_cat=1;

	if _trt <=0 then
		delete;
	output;
run;

proc sort data=_anal1;
	by _datasrt _blcksrt _EVENT1 _trt _cat;
run;

data _temp1;
	set _anal1;
	output;
run;

proc sort data=_temp1 out=_temp91 nodupkey;
	by _datasrt _blcksrt _cat _EVENT1 _trt usubjid;
	;
run;

proc freq data=_temp91;
	format _EVENT1;
	tables _datasrt*_blcksrt*_cat * _EVENT1 * _trt / sparse norow nocol nopercent
		out=_pct1(drop=percent);
run;

proc sort data=_anal1 out=_denom1(keep=_datasrt _cat) nodupkey;
	;
	by _datasrt _cat;
run;

data _denom1;
	set _denom1;
	by _datasrt _cat;
	label count='count';
	_trt=1;
	count=&_trt1.;
	output;
	_trt=2;
	count=&_trt2.;
	output;
	_trt=3;
	count=&_trt3.;
	output;
run;
```

```
data _denomf1;
	_datasrt=1;
	set _bydat1(keep=);
	* All treatment groups ;
	_trt1=0;
	_trt2=0;
	_trt3=0;
	* _CAT is the subgroup variable ;
	_cat=1;
	output;
run;

proc transpose data=_denom1 out=_denomin1(drop=_name_ _label_) prefix=_trt;
	by _datasrt _cat;
	var count;
	id _trt;
run;

data _frame1;
	_datasrt=1;
	set _bydat1(keep=);
	_blcksrt=1;
	length _EVENT1 8;
	_catLabl=" ";
	_trt=1;
	_EVENT1=1;
	_catord=1;
	_cat=1;
	output;
	_trt=2;
	_EVENT1=1;
	_catord=1;
	_cat=1;
	output;
	_trt=3;
	_EVENT1=1;
	_catord=1;
	_cat=1;
	output;
run;

proc sort data=_frame1;
	by _datasrt _blcksrt _cat _EVENT1 _trt;
run;

proc sort data=_pct1;
	by _datasrt _blcksrt _cat _EVENT1 _trt;
run;

data _pct1;
	merge _frame1(in=_inframe) _pct1;
	by _datasrt _blcksrt _cat _EVENT1 _trt;
```

```
    if _inframe;

    if count=. then
        count=0;
run;

proc sort data=_pct1;
    by _datasrt _blcksrt _EVENT1;
run;

data _miss1(keep=_datasrt _blcksrt _EVENT1 totcount);
    set _pct1;
    where _EVENT1=9998;
    retain totcount;
    by _datasrt _blcksrt _EVENT1;

    if first._EVENT1 then
        totcount=0;
    totcount=totcount+count;

    if last._EVENT1;
run;

data _pct1(drop=totcount);
    merge _pct1 _miss1;
    by _datasrt _blcksrt _EVENT1;

    if totcount=0 then
        delete;
run;

proc sort data=_denomf1;
    by _datasrt _cat;
run;

proc sort data=_denomin1;
    by _datasrt _cat;
run;

data _denomin1;
    merge _denomf1(in=_inframe) _denomin1;
    by _datasrt _cat;

    if _inframe;
    _blcksrt=1;
run;

proc sort data=_pct1;
    by _datasrt _cat;
run;

data _pct1;
    if 0 then
        set _basetemplate;
```

```
	merge _denomin1(in=_a) _pct1;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT1 ";
	_vrlabel=" ";
	_rwlabel="Randomized ";

	if _EVENT1=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT1=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct1;
	by _datasrt _blcksrt _catord _EVENT1 _trt _cat;
run;

data _base1;
	length _catlabl $200;
	set _pct1 end=eof;
	by _datasrt _blcksrt _catord _EVENT1 _trt _cat;
	retain _rowsrt 0 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
	else
		_cvalue=put(0, 5.);

	if _trt ne . then
		do;

			if _trtcnt(_trt) > 0 then
				do;
					percent=count / _trtcnt(_trt) * 100;

					if percent > 0 then
						do;

							if round(percent, 0.1) GE 0.1 then
```

```
                                        _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                                    else
                                        _cpct="(*ESC*){nbspace 1}(0.0)";
                                    _cvalue=trim(_cvalue)||_cpct;
                                end;
                        end;
                end;

/*      if length(_cvalue) < 13 then */
/*              do; */
/*                      substr(_cvalue, 13, 1)='A0'x; */
/*              end; */

        if first._EVENT1 then
                do;
                        _rowsrt=_rowsrt + 1;
                        _rowmax=max(_rowsrt, _rowmax);
                end;
        _datatyp='data';
        _indent=0;
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
                _rwlabel=' ';
        _indent=0;
        _dptindt=0;

        if _trt=3 +1 then
                _trt=9999;

        if eof then
                call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 2 */
data _anal2;
        length _EVENT2 8;
        set _data1;
        where same and _EVENT2 is not missing;
        _blcksrt=1;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
                delete;
        output;
run;

proc sort data=_anal2;
        by _datasrt _blcksrt _EVENT2 _trt _cat;
```

```
run;

data _temp2;
      set _anal2;
      output;
run;

proc sort data=_temp2 out=_temp92 nodupkey;
      by _datasrt _blcksrt _cat _EVENT2 _trt usubjid;
      ;
run;

proc freq data=_temp92;
      format _EVENT2;
      tables _datasrt*_blcksrt*_cat * _EVENT2 * _trt / sparse norow nocol nopercent
            out=_pct2(drop=percent);
run;

proc sort data=_anal2 out=_denom2(keep=_datasrt _cat) nodupkey;
      ;
      by _datasrt _cat;
run;

data _denom2;
      set _denom2;
      by _datasrt _cat;
      label count='count';
      _trt=1;
      count=&_trt1.;
      output;
      _trt=2;
      count=&_trt2.;
      output;
      _trt=3;
      count=&_trt3.;
      output;
run;

data _denomf2;
      _datasrt=1;
      set _bydat1(keep=);
      * All treatment groups ;
      _trt1=0;
      _trt2=0;
      _trt3=0;
      * _CAT is the subgroup variable ;
      _cat=1;
      output;
run;

proc transpose data=_denom2 out=_denomin2(drop=_name_ _label_) prefix=_trt;
      by _datasrt _cat;
      var count;
      id _trt;
```

```
run;

data _frame2;
	_datasrt=1;
	set _bydat1(keep=);
	_blcksrt=1;
	length _EVENT2 8;
	_catLabl=" ";
	_trt=1;
	_EVENT2=1;
	_catord=1;
	_cat=1;
	output;
	_trt=2;
	_EVENT2=1;
	_catord=1;
	_cat=1;
	output;
	_trt=3;
	_EVENT2=1;
	_catord=1;
	_cat=1;
	output;
run;

proc sort data=_frame2;
	by _datasrt _blcksrt _cat _EVENT2 _trt;
run;

proc sort data=_pct2;
	by _datasrt _blcksrt _cat _EVENT2 _trt;
run;

data _pct2;
	merge _frame2(in=_inframe) _pct2;
	by _datasrt _blcksrt _cat _EVENT2 _trt;

	if _inframe;

	if count=. then
		count=0;
run;

proc sort data=_pct2;
	by _datasrt _blcksrt _EVENT2;
run;

data _miss2(keep=_datasrt _blcksrt _EVENT2 totcount);
	set _pct2;
	where _EVENT2=9998;
	retain totcount;
	by _datasrt _blcksrt _EVENT2;

	if first._EVENT2 then
```

```
            totcount=0;
        totcount=totcount+count;

        if last._EVENT2;
run;

data _pct2(drop=totcount);
        merge _pct2 _miss2;
        by _datasrt _blcksrt _EVENT2;

        if totcount=0 then
            delete;
run;

proc sort data=_denomf2;
        by _datasrt _cat;
run;

proc sort data=_denomin2;
        by _datasrt _cat;
run;

data _denomin2;
        merge _denomf2(in=_inframe) _denomin2;
        by _datasrt _cat;

        if _inframe;
        _blcksrt=1;
run;

proc sort data=_pct2;
        by _datasrt _cat;
run;

data _pct2;
        if 0 then
            set _basetemplate;
        merge _denomin2(in=_a) _pct2;
        by _datasrt _cat;

        if _a;
        _varname="_EVENT2 ";
        _vrlabel=" ";
        _rwlabel="Not vaccinated ";

        if _EVENT2=9998 then
            do;
                _rwlabel="Missing ";
                _catord=9998;
            end;
        else if _EVENT2=9999 then
            do;
                _rwlabel="Total ";
                _catord=9999;
```

```
        end;

    if _catord=. then
        _catord=9997;
run;

proc sort data=_pct2;
    by _datasrt _blcksrt _catord _EVENT2 _trt _cat;
run;

data _base2;
    length _catlabl $200;
    set _pct2 end=eof;
    by _datasrt _blcksrt _catord _EVENT2 _trt _cat;
    retain _rowsrt 1 _rowmax 0;
    array _trtcnt(*) _trt1-_trt4;
    drop _rowmax _cpct;
    length _cpct $100;
    _cpct=' ';
    _module='mcatstat';

    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*  if length(_cvalue) < 13 then */
/*      do; */
/*          substr(_cvalue, 13, 1)='A0'x; */
/*      end; */

    if first._EVENT2 then
        do;
            _rowsrt=_rowsrt + 1;
            _rowmax=max(_rowsrt, _rowmax);
```

```
            end;
        _datatyp='data';
        _indent=0;
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
            _rwlabel=' ';
        _indent=0;
        _dptindt=0;

        if _trt=3 +1 then
            _trt=9999;

        if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 3 */
data _anal3;
        length _EVENT3 8;
        set _data1;
        where same and _EVENT3 is not missing;
        _blcksrt=1;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
            delete;
        output;
run;

proc sort data=_anal3;
        by _datasrt _blcksrt _EVENT3 _trt _cat;
run;

data _temp3;
        set _anal3;
        output;
run;

proc sort data=_temp3 out=_temp93 nodupkey;
        by _datasrt _blcksrt _cat _EVENT3 _trt usubjid;
        ;
run;

proc freq data=_temp93;
        format _EVENT3;
        tables _datasrt*_blcksrt*_cat * _EVENT3 * _trt / sparse norow nocol nopercent
            out=_pct3(drop=percent);
run;
```

```
proc sort data=_anal3 out=_denom3(keep=_datasrt _cat) nodupkey;
	by _datasrt _cat;
run;

data _denom3;
	set _denom3;
	by _datasrt _cat;
	label count='count';
	_trt=1;
	count=&_trt1.;
	output;
	_trt=2;
	count=&_trt2.;
	output;
	_trt=3;
	count=&_trt3.;
	output;
run;

data _denomf3;
	_datasrt=1;
	set _bydat1(keep=);
	* All treatment groups ;
	_trt1=0;
	_trt2=0;
	_trt3=0;
	* _CAT is the subgroup variable ;
	_cat=1;
	output;
run;

proc transpose data=_denom3 out=_denomin3(drop=_name_ _label_) prefix=_trt;
	by _datasrt _cat;
	var count;
	id _trt;
run;

data _frame3;
	_datasrt=1;
	set _bydat1(keep=);
	_blcksrt=1;
	length _EVENT3 8;
	_catLabl=" ";
	_trt=1;
	_EVENT3=1;
	_catord=1;
	_cat=1;
	output;
	_trt=2;
	_EVENT3=1;
	_catord=1;
	_cat=1;
	output;
```

```
        _trt=3;
        _EVENT3=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame3;
        by _datasrt _blcksrt _cat _EVENT3 _trt;
run;

proc sort data=_pct3;
        by _datasrt _blcksrt _cat _EVENT3 _trt;
run;

data _pct3;
        merge _frame3(in=_inframe) _pct3;
        by _datasrt _blcksrt _cat _EVENT3 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct3;
        by _datasrt _blcksrt _EVENT3;
run;

data _miss3(keep=_datasrt _blcksrt _EVENT3 totcount);
        set _pct3;
        where _EVENT3=9998;
        retain totcount;
        by _datasrt _blcksrt _EVENT3;

        if first._EVENT3 then
                totcount=0;
        totcount=totcount+count;

        if last._EVENT3;
run;

data _pct3(drop=totcount);
        merge _pct3 _miss3;
        by _datasrt _blcksrt _EVENT3;

        if totcount=0 then
                delete;
run;

proc sort data=_denomf3;
        by _datasrt _cat;
run;
```

```
proc sort data=_denomin3;
	by _datasrt _cat;
run;

data _denomin3;
	merge _denomf3(in=_inframe) _denomin3;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=1;
run;

proc sort data=_pct3;
	by _datasrt _cat;
run;

data _pct3;
	if 0 then
		set _basetemplate;
	merge _denomin3(in=_a) _pct3;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT3 ";
	_vrlabel="Original blinded placebo-controlled follow-up period ";
	_rwlabel="Vaccinated ";

	if _EVENT3=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT3=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct3;
	by _datasrt _blcksrt _catord _EVENT3 _trt _cat;
run;

data _base3;
	length _catlabl $200;
	set _pct3 end=eof;
	by _datasrt _blcksrt _catord _EVENT3 _trt _cat;
	retain _rowsrt 2 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
```

```
    _cpct=' ';
    _module='mcatstat';

    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*  if length(_cvalue) < 13 then */
/*      do; */
/*          substr(_cvalue, 13, 1)='A0'x; */
/*      end; */

    if first._EVENT3 then
        do;
            _rowsrt=_rowsrt + 1;
            _rowmax=max(_rowsrt, _rowmax);
        end;
    _datatyp='data';
    _indent=0;
    _dptindt=0;
    _vorder=1;
    _rowjump=1;

    if upcase(_rwlabel)='_NONE_' then
        _rwlabel=' ';
    _indent=2;
    _dptindt=0;

    if _trt=3 +1 then
        _trt=9999;

    if eof then
        call symput('_rowsrt', compress(put(_rowmax, 4.)));
    _direct="TOP ";
```

```
        _p=2;
run;

/* Crit 4 */
data _anal4;
        length _EVENT4 8;
        set _data1;
        where same and _EVENT4 is not missing;
        _blcksrt=1;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
                delete;
        output;
run;

proc sort data=_anal4;
        by _datasrt _blcksrt _EVENT4 _trt _cat;
run;

data _temp4;
        set _anal4;
        output;
run;

proc sort data=_temp4 out=_temp94 nodupkey;
        by _datasrt _blcksrt _cat _EVENT4 _trt usubjid;
run;

proc freq data=_temp94;
        format _EVENT4;
        tables _datasrt*_blcksrt*_cat * _EVENT4 * _trt / sparse norow nocol nopercent
                out=_pct4(drop=percent);
run;

proc sort data=_anal4 out=_denom4(keep=_datasrt _cat) nodupkey;
        ;
        by _datasrt _cat;
run;

data _denom4;
        set _denom4;
        by _datasrt _cat;
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
```

```
run;

data _denomf4;
      _datasrt=1;
      set _bydat1(keep=);
      * All treatment groups ;
      _trt1=0;
      _trt2=0;
      _trt3=0;
      * _CAT is the subgroup variable ;
      _cat=1;
      output;
run;

proc transpose data=_denom4 out=_denomin4(drop=_name_ _label_) prefix=_trt;
      by _datasrt _cat;
      var count;
      id _trt;
run;

data _frame4;
      _datasrt=1;
      set _bydat1(keep=);
      _blcksrt=1;
      length _EVENT4 8;
      _catLabl=" ";
      _trt=1;
      _EVENT4=1;
      _catord=1;
      _cat=1;
      output;
      _trt=2;
      _EVENT4=1;
      _catord=1;
      _cat=1;
      output;
      _trt=3;
      _EVENT4=1;
      _catord=1;
      _cat=1;
      output;
run;

proc sort data=_frame4;
      by _datasrt _blcksrt _cat _EVENT4 _trt;
run;

proc sort data=_pct4;
      by _datasrt _blcksrt _cat _EVENT4 _trt;
run;

data _pct4;
      merge _frame4(in=_inframe) _pct4;
      by _datasrt _blcksrt _cat _EVENT4 _trt;
```

```
        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct4;
        by _datasrt _blcksrt _EVENT4;
run;

data _miss4(keep=_datasrt _blcksrt _EVENT4 totcount);
        set _pct4;
        where _EVENT4=9998;
        retain totcount;
        by _datasrt _blcksrt _EVENT4;

        if first._EVENT4 then
                totcount=0;
        totcount=totcount+count;

        if last._EVENT4;
run;

data _pct4(drop=totcount);
        merge _pct4 _miss4;
        by _datasrt _blcksrt _EVENT4;

        if totcount=0 then
                delete;
run;

proc sort data=_denomf4;
        by _datasrt _cat;
run;

proc sort data=_denomin4;
        by _datasrt _cat;
run;

data _denomin4;
        merge _denomf4(in=_inframe) _denomin4;
        by _datasrt _cat;

        if _inframe;
        _blcksrt=1;
run;

proc sort data=_pct4;
        by _datasrt _cat;
run;

data _pct4;
        if 0 then
```

```
        set _basetemplate;
    merge _denomin4(in=_a) _pct4;
    by _datasrt _cat;

    if _a;
    _varname="_EVENT4 ";
    _vrlabel=" ";
    _rwlabel="Dose 1 ";

    if _EVENT4=9998 then
        do;
            _rwlabel="Missing ";
            _catord=9998;
        end;
    else if _EVENT4=9999 then
        do;
            _rwlabel="Total ";
            _catord=9999;
        end;

    if _catord=. then
        _catord=9997;
run;

proc sort data=_pct4;
    by _datasrt _blcksrt _catord _EVENT4 _trt _cat;
run;

data _base4;
    length _catlabl $200;
    set _pct4 end=eof;
    by _datasrt _blcksrt _catord _EVENT4 _trt _cat;
    retain _rowsrt 3 _rowmax 0;
    array _trtcnt(*) _trt1-_trt4;
    drop _rowmax _cpct;
    length _cpct $100;
    _cpct=' ';
    _module='mcatstat';

    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;
```

```
                                    if round(percent, 0.1) GE 0.1 then
                                        _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                                    else
                                        _cpct="(*ESC*){nbspace 1}(0.0)";
                                    _cvalue=trim(_cvalue)||_cpct;
                                end;
                            end;
                    end;

/*      if length(_cvalue) < 13 then */
/*          do; */
/*              substr(_cvalue, 13, 1)='A0'x; */
/*          end; */

        if first._EVENT4 then
            do;
                _rowsrt=_rowsrt + 1;
                _rowmax=max(_rowsrt, _rowmax);
            end;
        _datatyp='data';
        _indent=0;
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
            _rwlabel=' ';
        _indent=4;
        _dptindt=0;

        if _trt=3 +1 then
            _trt=9999;

        if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 5 */
data _anal5;
        length _EVENT5 8;
        set _data1;
        where same and _EVENT5 is not missing;
        _blcksrt=1;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
            delete;
        output;
run;

proc sort data=_anal5;
```

```
    by _datasrt _blcksrt _EVENT5 _trt _cat;
run;

data _temp5;
    set _anal5;
    output;
run;

proc sort data=_temp5 out=_temp95 nodupkey;
    by _datasrt _blcksrt _cat _EVENT5 _trt usubjid;
    ;
run;

proc freq data=_temp95;
    format _EVENT5;
    tables _datasrt*_blcksrt*_cat * _EVENT5 * _trt / sparse norow nocol nopercent
        out=_pct5(drop=percent);
run;

proc sort data=_anal5 out=_denom5(keep=_datasrt _cat) nodupkey;
    ;
    by _datasrt _cat;
run;

data _denom5;
    set _denom5;
    by _datasrt _cat;
    label count='count';
    _trt=1;
    count=&_trt1.;
    output;
    _trt=2;
    count=&_trt2.;
    output;
    _trt=3;
    count=&_trt3.;
    output;
run;

data _denomf5;
    _datasrt=1;
    set _bydat1(keep=);
    * All treatment groups ;
    _trt1=0;
    _trt2=0;
    _trt3=0;
    * _CAT is the subgroup variable ;
    _cat=1;
    output;
run;

proc transpose data=_denom5 out=_denomin5(drop=_name_ _label_) prefix=_trt;
    by _datasrt _cat;
    var count;
```

```
        id _trt;
run;

data _frame5;
        _datasrt=1;
        set _bydat1(keep=);
        _blcksrt=1;
        length _EVENT5 8;
        _catLabl=" ";
        _trt=1;
        _EVENT5=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT5=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT5=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame5;
        by _datasrt _blcksrt _cat _EVENT5 _trt;
run;

proc sort data=_pct5;
        by _datasrt _blcksrt _cat _EVENT5 _trt;
run;

data _pct5;
        merge _frame5(in=_inframe) _pct5;
        by _datasrt _blcksrt _cat _EVENT5 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct5;
        by _datasrt _blcksrt _EVENT5;
run;

data _miss5(keep=_datasrt _blcksrt _EVENT5 totcount);
        set _pct5;
        where _EVENT5=9998;
        retain totcount;
        by _datasrt _blcksrt _EVENT5;
```

```
    if first._EVENT5 then
        totcount=0;
    totcount=totcount+count;

    if last._EVENT5;
run;

data _pct5(drop=totcount);
    merge _pct5 _miss5;
    by _datasrt _blcksrt _EVENT5;

    if totcount=0 then
        delete;
run;

proc sort data=_denomf5;
    by _datasrt _cat;
run;

proc sort data=_denomin5;
    by _datasrt _cat;
run;

data _denomin5;
    merge _denomf5(in=_inframe) _denomin5;
    by _datasrt _cat;

    if _inframe;
    _blcksrt=1;
run;

proc sort data=_pct5;
    by _datasrt _cat;
run;

data _pct5;
    if 0 then
        set _basetemplate;
    merge _denomin5(in=_a) _pct5;
    by _datasrt _cat;

    if _a;
    _varname="_EVENT5 ";
    _vrlabel=" ";
    _rwlabel="Dose 2  ";

    if _EVENT5=9998 then
        do;
            _rwlabel="Missing ";
            _catord=9998;
        end;
    else if _EVENT5=9999 then
        do;
            _rwlabel="Total ";
```

```
                _catord=9999;
        end;

    if _catord=. then
        _catord=9997;
run;

proc sort data=_pct5;
    by _datasrt _blcksrt _catord _EVENT5 _trt _cat;
run;

data _base5;
    length _catlabl $200;
    set _pct5 end=eof;
    by _datasrt _blcksrt _catord _EVENT5 _trt _cat;
    retain _rowsrt 4 _rowmax 0;
    array _trtcnt(*) _trt1-_trt4;
    drop _rowmax _cpct;
    length _cpct $100;
    _cpct=' ';
    _module='mcatstat';

    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*  if length(_cvalue) < 13 then */
/*      do; */
/*          substr(_cvalue, 13, 1)='A0'x; */
/*      end; */

    if first._EVENT5 then
        do;
            _rowsrt=_rowsrt + 1;
```

```
                _rowmax=max(_rowsrt, _rowmax);
            end;
        _datatyp='data';
        _indent=0;
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
            _rwlabel=' ';
        _indent=4;
        _dptindt=0;

        if _trt=3 +1 then
            _trt=9999;

        if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 6 */
data _anal6;
        length _EVENT6 8;
        set _data1;
        where same and _EVENT6 is not missing;
        _blcksrt=2;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
            delete;
        output;
run;

proc sort data=_anal6;
        by _datasrt _blcksrt _EVENT6 _trt _cat;
run;

data _temp6;
        set _anal6;
        output;
run;

proc sort data=_temp6 out=_temp96 nodupkey;
        by _datasrt _blcksrt _cat _EVENT6 _trt usubjid;
run;

proc freq data=_temp96;
        format _EVENT6;
        tables _datasrt*_blcksrt*_cat * _EVENT6 * _trt / sparse norow nocol nopercent
            out=_pct6(drop=percent);
run;
```

```
proc sort data=_anal6 out=_denom6(keep=_datasrt _cat) nodupkey;
	;
	by _datasrt _cat;
run;

data _denom6;
	set _denom6;
	by _datasrt _cat;
	label count='count';
	_trt=1;
	count=&_trt1.;
	output;
	_trt=2;
	count=&_trt2.;
	output;
	_trt=3;
	count=&_trt3.;
	output;
run;

data _denomf6;
	_datasrt=1;
	set _bydat1(keep=);
	* All treatment groups ;
	_trt1=0;
	_trt2=0;
	_trt3=0;
	* _CAT is the subgroup variable ;
	_cat=1;
	output;
run;

proc transpose data=_denom6 out=_denomin6(drop=_name_ _label_) prefix=_trt;
	by _datasrt _cat;
	var count;
	id _trt;
run;

data _frame6;
	_datasrt=1;
	set _bydat1(keep=);
	_blcksrt=2;
	length _EVENT6 8;
	_catLabl=" ";
	_trt=1;
	_EVENT6=1;
	_catord=1;
	_cat=1;
	output;
	_trt=2;
	_EVENT6=1;
	_catord=1;
	_cat=1;
```

```
        output;
        _trt=3;
        _EVENT6=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame6;
        by _datasrt _blcksrt _cat _EVENT6 _trt;
run;

proc sort data=_pct6;
        by _datasrt _blcksrt _cat _EVENT6 _trt;
run;

data _pct6;
        merge _frame6(in=_inframe) _pct6;
        by _datasrt _blcksrt _cat _EVENT6 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct6;
        by _datasrt _blcksrt _EVENT6;
run;

data _miss6(keep=_datasrt _blcksrt _EVENT6 totcount);
        set _pct6;
        where _EVENT6=9998;
        retain totcount;
        by _datasrt _blcksrt _EVENT6;

        if first._EVENT6 then
                totcount=0;
        totcount=totcount+count;

        if last._EVENT6;
run;

data _pct6(drop=totcount);
        merge _pct6 _miss6;
        by _datasrt _blcksrt _EVENT6;

        if totcount=0 then
                delete;
run;

proc sort data=_denomf6;
        by _datasrt _cat;
run;
```

```
proc sort data=_denomin6;
	by _datasrt _cat;
run;

data _denomin6;
	merge _denomf6(in=_inframe) _denomin6;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=2;
run;

proc sort data=_pct6;
	by _datasrt _cat;
run;

data _pct6;
	if 0 then
		set _basetemplate;
	merge _denomin6(in=_a) _pct6;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT6 ";
	_vrlabel=" ";
	_rwlabel="Discontinued from original blinded placebo-controlled vaccination period~{super c}";

	if _EVENT6=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT6=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct6;
	by _datasrt _blcksrt _catord _EVENT6 _trt _cat;
run;

data _base6;
	length _catlabl $200;
	set _pct6 end=eof;
	by _datasrt _blcksrt _catord _EVENT6 _trt _cat;
	retain _rowsrt 0 _rowmax 0;
	array _trtcnt(*) _trt1- _trt4;
	drop _rowmax _cpct;
```

```
length _cpct $100;
_cpct=' ';
_module='mcatstat';

if count > . then
	_cvalue=put(count, 5.);
else
	_cvalue=put(0, 5.);

if _trt ne . then
	do;

		if _trtcnt(_trt) > 0 then
			do;
				percent=count / _trtcnt(_trt) * 100;

				if percent > 0 then
					do;

						if round(percent, 0.1) GE 0.1 then
							_cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
						else
							_cpct="(*ESC*){nbspace 1}(0.0)";
						_cvalue=trim(_cvalue)||_cpct;
					end;
			end;
	end;

/*	if length(_cvalue) < 13 then */
/*		do; */
/*			substr(_cvalue, 13, 1)='A0'x; */
/*		end; */

	if first._EVENT6 then
		do;
			_rowsrt=_rowsrt + 1;
			_rowmax=max(_rowsrt, _rowmax);
		end;
	_datatyp='data';
	_indent=0;
	_dptindt=0;
	_vorder=1;
	_rowjump=1;

	if upcase(_rwlabel)='_NONE_' then
		_rwlabel=' ';
	_indent=2;
	_dptindt=0;

	if _trt=3 +1 then
		_trt=9999;

	if eof then
		call symput('_rowsrt', compress(put(_rowmax, 4.)));
```

```
        _direct="TOP ";
        _p=2;
run;

/* Crit 7 */
data _anal7;
        length DSDECODN 8;
        set _data1;
        where same and DSDECODN is not missing;
        _blcksrt=2;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
                delete;
        output;
run;

proc sort data=_anal7;
        by _datasrt _blcksrt DSDECODN _trt _cat;
run;

data _temp7;
        set _anal7;
        output;
run;

proc sort data=_temp7 out=_temp97 nodupkey;
        by _datasrt _blcksrt _cat DSDECODN _trt usubjid;
        where RANDFL eq 'Y' and DSPHASEN=26 and EOTDCDT ne . and dsdecodn not in (. 2)
                and (VAX101DT ne . or VAX102DT ne .) and (unblnddt=. or eotdcdt<unblnddt);
run;

proc freq data=_temp97;
        format DSDECODN;
        tables _datasrt*_blcksrt*_cat * DSDECODN * _trt / sparse norow nocol nopercent
                out=_pct7(drop=percent);
run;

proc sort data=_anal7 out=_denom7(keep=_datasrt _cat) nodupkey;
        where RANDFL eq 'Y' and DSPHASEN=26 and EOTDCDT ne . and dsdecodn not in (. 2)
                and (VAX101DT ne . or VAX102DT ne .) and (unblnddt=. or eotdcdt<unblnddt);
        by _datasrt _cat;
run;

data _denom7;
        set _denom7;
        by _datasrt _cat;
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
```

```
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf7;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom7 out=_denomin7(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

proc sort data=_pct7 out=_expv7 (keep=_datasrt _blcksrt DSDECODN) nodupkey;
        by _datasrt _blcksrt DSDECODN;
run;

proc sort data=_expv7;
        by _datasrt _blcksrt DSDECODN;
run;

data _frame7;
        set _expv7;
        by _datasrt _blcksrt DSDECODN;

        if first._blcksrt then
                _catord=0;
        _catord + 1;
        _trt=1;
        _cat=1;
        output;
        _trt=2;
        _cat=1;
        output;
        _trt=3;
        _cat=1;
        output;
run;

proc sort data=_frame7;
        by _datasrt _blcksrt _cat DSDECODN _trt;
run;
```

```
proc sort data=_pct7;
	by _datasrt _blcksrt _cat DSDECODN _trt;
run;

data _pct7;
	merge _frame7(in=_inframe) _pct7;
	by _datasrt _blcksrt _cat DSDECODN _trt;

	if _inframe;

	if count=. then
		count=0;
run;

proc sort data=_pct7;
	by _datasrt _blcksrt DSDECODN;
run;

data _miss7(keep=_datasrt _blcksrt DSDECODN totcount);
	set _pct7;
	where DSDECODN=9998;
	retain totcount;
	by _datasrt _blcksrt DSDECODN;

	if first.DSDECODN then
		totcount=0;
	totcount=totcount+count;

	if last.DSDECODN;
run;

data _pct7(drop=totcount);
	merge _pct7 _miss7;
	by _datasrt _blcksrt DSDECODN;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf7;
	by _datasrt _cat;
run;

proc sort data=_denomin7;
	by _datasrt _cat;
run;

data _denomin7;
	merge _denomf7(in=_inframe) _denomin7;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=2;
run;
```

```
proc sort data=_pct7;
	by _datasrt _cat;
run;

data _pct7;
	if 0 then
		set _basetemplate;
	merge _denomin7(in=_a) _pct7;
	by _datasrt _cat;

	if _a;
	_varname="DSDECODN ";
	_vrlabel="Reason for discontinuation ";
	_rwlabel=put(DSDECODN, dsdecod.);

	if DSDECODN=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if DSDECODN=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct7;
	by _datasrt _blcksrt _catord DSDECODN _trt _cat;
run;

data _base7;
	length _catlabl $200;
	set _pct7 end=eof;
	by _datasrt _blcksrt _catord DSDECODN _trt _cat;
	retain _rowsrt 1 _rowmax 0;
	array _trtcnt(*) _trt1- _trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
	else
		_cvalue=put(0, 5.);

	if _trt ne . then
		do;
```

```
            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*      if length(_cvalue) < 13 then */
/*          do; */
                *------------------------------------------------------------------------;
                * Put character A0x at right most character to pad text;
                *------------------------------------------------------------------------;
/*              substr(_cvalue, 13, 1)='A0'x; */
/*          end; */

    if first.DSDECODN then
        do;
            _rowsrt=_rowsrt + 1;
            _rowmax=max(_rowsrt, _rowmax);
        end;
    _datatyp='data';
    _indent=0;
    _dptindt=0;
    _vorder=1;
    _rowjump=1;

    if upcase(_rwlabel)='_NONE_' then
        _rwlabel=' ';
    _indent=8;
    _dptindt=4;

    if _trt=3 +1 then
        _trt=9999;

    if eof then
        call symput('_rowsrt', compress(put(_rowmax, 4.)));
    _direct="TOP ";
    _p=2;
run;

/* Crit 8 */
data _anal8;
    length _EVENT8 8;
    set _data1;
    where same and _EVENT8 is not missing;
```

```
        _blcksrt=3;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
              delete;
        output;
run;

proc sort data=_anal8;
        by _datasrt _blcksrt _EVENT8 _trt _cat;
run;

data _temp8;
        set _anal8;
        output;
run;

proc sort data=_temp8 out=_temp98 nodupkey;
        by _datasrt _blcksrt _cat _EVENT8 _trt usubjid;
run;

proc freq data=_temp98;
        format _EVENT8;
        tables _datasrt*_blcksrt*_cat * _EVENT8 * _trt / sparse norow nocol nopercent
              out=_pct8(drop=percent);
run;

proc sort data=_anal8 out=_denom8(keep=_datasrt _cat) nodupkey;
        ;
        by _datasrt _cat;
run;

data _denom8;
        set _denom8;
        by _datasrt _cat;
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf8;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
        _trt2=0;
```

```
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom8 out=_denomin8(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

data _frame8;
        _datasrt=1;
        set _bydat1(keep=);
        _blcksrt=3;
        length _EVENT8 8;
        _catLabl=" ";
        _trt=1;
        _EVENT8=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT8=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT8=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame8;
        by _datasrt _blcksrt _cat _EVENT8 _trt;
run;

proc sort data=_pct8;
        by _datasrt _blcksrt _cat _EVENT8 _trt;
run;

data _pct8;
        merge _frame8(in=_inframe) _pct8;
        by _datasrt _blcksrt _cat _EVENT8 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct8;
```

```
    by _datasrt _blcksrt _EVENT8;
run;

data _miss8(keep=_datasrt _blcksrt _EVENT8 totcount);
    set _pct8;
    where _EVENT8=9998;
    retain totcount;
    by _datasrt _blcksrt _EVENT8;

    if first._EVENT8 then
        totcount=0;
    totcount=totcount+count;

    if last._EVENT8;
run;

data _pct8(drop=totcount);
    merge _pct8 _miss8;
    by _datasrt _blcksrt _EVENT8;

    if totcount=0 then
        delete;
run;

proc sort data=_denomf8;
    by _datasrt _cat;
run;

proc sort data=_denomin8;
    by _datasrt _cat;
run;

data _denomin8;
    merge _denomf8(in=_inframe) _denomin8;
    by _datasrt _cat;

    if _inframe;
    _blcksrt=3;
run;

proc sort data=_pct8;
    by _datasrt _cat;
run;

data _pct8;
    if 0 then
        set _basetemplate;
    merge _denomin8(in=_a) _pct8;
    by _datasrt _cat;

    if _a;
    _varname="_EVENT8 ";
    _vrlabel=" ";
    _rwlabel="Unblinded before 1-month post(*ESC*){unicode 2013}Dose 2 visit ";
```

```
    if _EVENT8=9998 then
        do;
            _rwlabel="Missing ";
            _catord=9998;
        end;
    else if _EVENT8=9999 then
        do;
            _rwlabel="Total ";
            _catord=9999;
        end;

    if _catord=. then
        _catord=9997;
run;

proc sort data=_pct8;
    by _datasrt _blcksrt _catord _EVENT8 _trt _cat;
run;

data _base8;
    length _catlabl $200;
    set _pct8 end=eof;
    by _datasrt _blcksrt _catord _EVENT8 _trt _cat;
    retain _rowsrt 0 _rowmax 0;
    array _trtcnt(*) _trt1-_trt4;
    drop _rowmax _cpct;
    length _cpct $100;
    _cpct=' ';
    _module='mcatstat';

    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;
```

```
/*    if length(_cvalue) < 13 then */
/*          do; */
/*                substr(_cvalue, 13, 1)='A0'x; */
/*          end; */

      if first._EVENT8 then
            do;
                  _rowsrt=_rowsrt + 1;
                  _rowmax=max(_rowsrt, _rowmax);
            end;
      _datatyp='data';
      _indent=0;
      _dptindt=0;
      _vorder=1;
      _rowjump=1;

      if upcase(_rwlabel)='_NONE_' then
            _rwlabel=' ';
      _indent=2;
      _dptindt=0;

      if _trt=3 +1 then
            _trt=9999;

      if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
      _direct="TOP ";
      _p=2;
run;

/* Crit 9 */
data _anal9;
      length _EVENT9 8;
      set _data1;
      where same and _EVENT9 is not missing;
      _blcksrt=3;
      _cnt=1;
      _cat=1;

      if _trt <=0 then
            delete;
      output;
run;

proc sort data=_anal9;
      by _datasrt _blcksrt _EVENT9 _trt _cat;
run;

data _temp9;
      set _anal9;
      output;
run;
```

```
proc sort data=_temp9 out=_temp99 nodupkey;
      by _datasrt _blcksrt _cat _EVENT9 _trt usubjid;
      ;
run;

proc freq data=_temp99;
      format _EVENT9;
      tables _datasrt*_blcksrt*_cat * _EVENT9 * _trt / sparse norow nocol nopercent
            out=_pct9(drop=percent);
run;

proc sort data=_anal9 out=_denom9(keep=_datasrt _cat) nodupkey;
      ;
      by _datasrt _cat;
run;

data _denom9;
      set _denom9;
      by _datasrt _cat;
      label count='count';
      _trt=1;
      count=&_trt1.;
      output;
      _trt=2;
      count=&_trt2.;
      output;
      _trt=3;
      count=&_trt3.;
      output;
run;

data _denomf9;
      _datasrt=1;
      set _bydat1(keep=);
      * All treatment groups ;
      _trt1=0;
      _trt2=0;
      _trt3=0;
      * _CAT is the subgroup variable ;
      _cat=1;
      output;
run;

proc transpose data=_denom9 out=_denomin9(drop=_name_ _label_) prefix=_trt;
      by _datasrt _cat;
      var count;
      id _trt;
run;

data _frame9;
      _datasrt=1;
      set _bydat1(keep=);
      _blcksrt=3;
      length _EVENT9 8;
```

```
        _catLabl=" ";
        _trt=1;
        _EVENT9=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT9=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT9=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame9;
        by _datasrt _blcksrt _cat _EVENT9 _trt;
run;

proc sort data=_pct9;
        by _datasrt _blcksrt _cat _EVENT9 _trt;
run;

data _pct9;
        merge _frame9(in=_inframe) _pct9;
        by _datasrt _blcksrt _cat _EVENT9 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct9;
        by _datasrt _blcksrt _EVENT9;
run;

data _miss9(keep=_datasrt _blcksrt _EVENT9 totcount);
        set _pct9;
        where _EVENT9=9998;
        retain totcount;
        by _datasrt _blcksrt _EVENT9;

        if first._EVENT9 then
                totcount=0;
        totcount=totcount+count;

        if last._EVENT9;
run;

data _pct9(drop=totcount);
```

```
	merge _pct9 _miss9;
	by _datasrt _blcksrt _EVENT9;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf9;
	by _datasrt _cat;
run;

proc sort data=_denomin9;
	by _datasrt _cat;
run;

data _denomin9;
	merge _denomf9(in=_inframe) _denomin9;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=3;
run;

proc sort data=_pct9;
	by _datasrt _cat;
run;

data _pct9;
	if 0 then
		set _basetemplate;
	merge _denomin9(in=_a) _pct9;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT9 ";
	_vrlabel=" ";
	_rwlabel="Completed 1-month post(*ESC*){unicode 2013}Dose 2 visit ";

	if _EVENT9=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT9=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct9;
```

```
    by _datasrt _blcksrt _catord _EVENT9 _trt _cat;
run;

data _base9;
    length _catlabl $200;
    set _pct9 end=eof;
    by _datasrt _blcksrt _catord _EVENT9 _trt _cat;
    retain _rowsrt 1 _rowmax 0;
    array _trtcnt(*) _trt1-_trt4;
    drop _rowmax _cpct;
    length _cpct $100;
    _cpct=' ';
    _module='mcatstat';

    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*  if length(_cvalue) < 13 then */
/*      do; */
/*          substr(_cvalue, 13, 1)='A0'x; */
/*      end; */

    if first._EVENT9 then
        do;
            _rowsrt=_rowsrt + 1;
            _rowmax=max(_rowsrt, _rowmax);
        end;
    _datatyp='data';
    _indent=0;
    _dptindt=0;
    _vorder=1;
    _rowjump=1;
```

```
    if upcase(_rwlabel)='_NONE_' then
        _rwlabel=' ';
    _indent=2;
    _dptindt=0;

    if _trt=3 +1 then
        _trt=9999;

    if eof then
        call symput('_rowsrt', compress(put(_rowmax, 4.)));
    _direct="TOP ";
    _p=2;
run;

/* Crit 10 */
data _anal10;
    length _EVENT10 8;
    set _data1;
    where same and _EVENT10 is not missing;
    _blcksrt=4;
    _cnt=1;
    _cat=1;

    if _trt <=0 then
        delete;
    output;
run;

proc sort data=_anal10;
    by _datasrt _blcksrt _EVENT10 _trt _cat;
run;

data _temp10;
    set _anal10;
    output;
run;

proc sort data=_temp10 out=_temp910 nodupkey;
    by _datasrt _blcksrt _cat _EVENT10 _trt usubjid;
run;

proc freq data=_temp910;
    format _EVENT10;
    tables _datasrt*_blcksrt*_cat * _EVENT10 * _trt / sparse norow nocol nopercent
        out=_pct10(drop=percent);
run;

proc sort data=_anal10 out=_denom10(keep=_datasrt _cat) nodupkey;
    by _datasrt _cat;
run;

data _denom10;
    set _denom10;
    by _datasrt _cat;
```

```
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf10;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom10 out=_denomin10(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

data _frame10;
        _datasrt=1;
        set _bydat1(keep=);
        _blcksrt=4;
        length _EVENT10 8;
        _catLabl=" ";
        _trt=1;
        _EVENT10=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT10=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT10=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame10;
```

```
    by _datasrt _blcksrt _cat _EVENT10 _trt;
run;

proc sort data=_pct10;
    by _datasrt _blcksrt _cat _EVENT10 _trt;
run;

data _pct10;
    merge _frame10(in=_inframe) _pct10;
    by _datasrt _blcksrt _cat _EVENT10 _trt;

    if _inframe;

    if count=. then
        count=0;
run;

proc sort data=_pct10;
    by _datasrt _blcksrt _EVENT10;
run;

data _miss10(keep=_datasrt _blcksrt _EVENT10 totcount);
    set _pct10;
    where _EVENT10=9998;
    retain totcount;
    by _datasrt _blcksrt _EVENT10;

    if first._EVENT10 then
        totcount=0;
    totcount=totcount+count;

    if last._EVENT10;
run;

data _pct10(drop=totcount);
    merge _pct10 _miss10;
    by _datasrt _blcksrt _EVENT10;

    if totcount=0 then
        delete;
run;

proc sort data=_denomf10;
    by _datasrt _cat;
run;

proc sort data=_denomin10;
    by _datasrt _cat;
run;

data _denomin10;
    merge _denomf10(in=_inframe) _denomin10;
    by _datasrt _cat;
```

```
        if _inframe;
        _blcksrt=4;
run;

proc sort data=_pct10;
        by _datasrt _cat;
run;

data _pct10;
        if 0 then
                set _basetemplate;
        merge _denomin10(in=_a) _pct10;
        by _datasrt _cat;

        if _a;
        _varname="_EVENT10 ";
        _vrlabel=" ";
        _rwlabel="Withdrawn from the study ";

        if _EVENT10=9998 then
                do;
                        _rwlabel="Missing ";
                        _catord=9998;
                end;
        else if _EVENT10=9999 then
                do;
                        _rwlabel="Total ";
                        _catord=9999;
                end;

        if _catord=. then
                _catord=9997;
run;

proc sort data=_pct10;
        by _datasrt _blcksrt _catord _EVENT10 _trt _cat;
run;

data _base10;
        length _catlabl $200;
        set _pct10 end=eof;
        by _datasrt _blcksrt _catord _EVENT10 _trt _cat;
        retain _rowsrt 0 _rowmax 0;
        array _trtcnt(*) _trt1-_trt4;
        drop _rowmax _cpct;
        length _cpct $100;
        _cpct=' ';
        _module='mcatstat';

        if count > . then
                _cvalue=put(count, 5.);
        else
                _cvalue=put(0, 5.);
```

```
    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*  if length(_cvalue) < 13 then */
/*      do; */
/*          substr(_cvalue, 13, 1)='A0'x; */
/*      end; */

    if first._EVENT10 then
        do;
            _rowsrt=_rowsrt + 1;
            _rowmax=max(_rowsrt, _rowmax);
        end;
    _datatyp='data';
    _indent=0;
    _dptindt=0;
    _vorder=1;
    _rowjump=1;

    if upcase(_rwlabel)='_NONE_' then
        _rwlabel=' ';
    _indent=2;
    _dptindt=0;

    if _trt=3 +1 then
        _trt=9999;

    if eof then
        call symput('_rowsrt', compress(put(_rowmax, 4.)));
    _direct="TOP ";
    _p=2;
run;

/* Crit 11 */
data _anal11;
    length _EVENT11 8;
    set _data1;
    where same and _EVENT11 is not missing;
```

```
        _blcksrt=4;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
              delete;
        output;
run;

proc sort data=_anal11;
        by _datasrt _blcksrt _EVENT11 _trt _cat;
run;

data _temp11;
        set _anal11;
        output;
run;

proc sort data=_temp11 out=_temp911 nodupkey;
        by _datasrt _blcksrt _cat _EVENT11 _trt usubjid;
        ;
run;

proc freq data=_temp911;
        format _EVENT11;
        tables _datasrt*_blcksrt*_cat * _EVENT11 * _trt / sparse norow nocol nopercent
              out=_pct11(drop=percent);
run;

proc sort data=_anal11 out=_denom11(keep=_datasrt _cat) nodupkey;
        ;
        by _datasrt _cat;
run;

data _denom11;
        set _denom11;
        by _datasrt _cat;
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf11;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
```

```
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom11 out=_denomin11(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

data _frame11;
        _datasrt=1;
        set _bydat1(keep=);
        _blcksrt=4;
        length _EVENT11 8;
        _catLabl=" ";
        _trt=1;
        _EVENT11=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT11=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT11=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame11;
        by _datasrt _blcksrt _cat _EVENT11 _trt;
run;

proc sort data=_pct11;
        by _datasrt _blcksrt _cat _EVENT11 _trt;
run;

data _pct11;
        merge _frame11(in=_inframe) _pct11;
        by _datasrt _blcksrt _cat _EVENT11 _trt;

        if _inframe;

        if count=. then
                count=0;
run;
```

```
proc sort data=_pct11;
	by _datasrt _blcksrt _EVENT11;
run;

data _miss11(keep=_datasrt _blcksrt _EVENT11 totcount);
	set _pct11;
	where _EVENT11=9998;
	retain totcount;
	by _datasrt _blcksrt _EVENT11;

	if first._EVENT11 then
		totcount=0;
	totcount=totcount+count;

	if last._EVENT11;
run;

data _pct11(drop=totcount);
	merge _pct11 _miss11;
	by _datasrt _blcksrt _EVENT11;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf11;
	by _datasrt _cat;
run;

proc sort data=_denomin11;
	by _datasrt _cat;
run;

data _denomin11;
	merge _denomf11(in=_inframe) _denomin11;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=4;
run;

proc sort data=_pct11;
	by _datasrt _cat;
run;

data _pct11;
	if 0 then
		set _basetemplate;
	merge _denomin11(in=_a) _pct11;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT11 ";
	_vrlabel=" ";
```

```
    _rwlabel="Withdrawn after Dose 1 and before Dose 2 ";

    if _EVENT11=9998 then
        do;
            _rwlabel="Missing ";
            _catord=9998;
        end;
    else if _EVENT11=9999 then
        do;
            _rwlabel="Total ";
            _catord=9999;
        end;

    if _catord=. then
        _catord=9997;
run;

proc sort data=_pct11;
    by _datasrt _blcksrt _catord _EVENT11 _trt _cat;
run;

data _base11;
    length _catlabl $200;
    set _pct11 end=eof;
    by _datasrt _blcksrt _catord _EVENT11 _trt _cat;
    retain _rowsrt 1 _rowmax 0;
    array _trtcnt(*) _trt1-_trt4;
    drop _rowmax _cpct;
    length _cpct $100;
    _cpct=' ';
    _module='mcatstat';

    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);
    *-------------------------------------------------------------------------;
    * Format percent to append to display value in _CVALUE ;
    *-------------------------------------------------------------------------;

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
```

```
                                    _cvalue=trim(_cvalue)||_cpct;
                                end;
                        end;
            end;

/*      if length(_cvalue) < 13 then */
/*          do; */
                *-------------------------------------------------------------------;
                * Put character A0x at right most character to pad text;
                *-------------------------------------------------------------------;
/*              substr(_cvalue, 13, 1)='A0'x; */
/*          end; */

        if first._EVENT11 then
            do;
                _rowsrt=_rowsrt + 1;
                _rowmax=max(_rowsrt, _rowmax);
            end;
        _datatyp='data';
        _indent=0;
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
            _rwlabel=' ';
        _indent=4;
        _dptindt=0;

        if _trt=3 +1 then
            _trt=9999;

        if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 12 */
data _anal12;
        length _EVENT12 8;
        set _data1;
        where same and _EVENT12 is not missing;
        _blcksrt=4;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
            delete;
        output;
run;

proc sort data=_anal12;
        by _datasrt _blcksrt _EVENT12 _trt _cat;
```

```
run;

data _temp12;
      set _anal12;
      output;
run;

proc sort data=_temp12 out=_temp912 nodupkey;
      by _datasrt _blcksrt _cat _EVENT12 _trt usubjid;
run;

proc freq data=_temp912;
      format _EVENT12;
      tables _datasrt*_blcksrt*_cat * _EVENT12 * _trt / sparse norow nocol nopercent
            out=_pct12(drop=percent);
run;

proc sort data=_anal12 out=_denom12(keep=_datasrt _cat) nodupkey;
      ;
      by _datasrt _cat;
run;

data _denom12;
      set _denom12;
      by _datasrt _cat;
      label count='count';
      _trt=1;
      count=&_trt1.;
      output;
      _trt=2;
      count=&_trt2.;
      output;
      _trt=3;
      count=&_trt3.;
      output;
run;

data _denomf12;
      _datasrt=1;
      set _bydat1(keep=);
      * All treatment groups ;
      _trt1=0;
      _trt2=0;
      _trt3=0;
      * _CAT is the subgroup variable ;
      _cat=1;
      output;
run;

proc transpose data=_denom12 out=_denomin12(drop=_name_ _label_) prefix=_trt;
      by _datasrt _cat;
      var count;
      id _trt;
run;
```

```
data _frame12;
	_datasrt=1;
	set _bydat1(keep=);
	_blcksrt=4;
	length _EVENT12 8;
	_catLabl=" ";
	_trt=1;
	_EVENT12=1;
	_catord=1;
	_cat=1;
	output;
	_trt=2;
	_EVENT12=1;
	_catord=1;
	_cat=1;
	output;
	_trt=3;
	_EVENT12=1;
	_catord=1;
	_cat=1;
	output;
run;

proc sort data=_frame12;
	by _datasrt _blcksrt _cat _EVENT12 _trt;
run;

proc sort data=_pct12;
	by _datasrt _blcksrt _cat _EVENT12 _trt;
run;

data _pct12;
	merge _frame12(in=_inframe) _pct12;
	by _datasrt _blcksrt _cat _EVENT12 _trt;

	if _inframe;

	if count=. then
		count=0;
run;

proc sort data=_pct12;
	by _datasrt _blcksrt _EVENT12;
run;

data _miss12(keep=_datasrt _blcksrt _EVENT12 totcount);
	set _pct12;
	where _EVENT12=9998;
	retain totcount;
	by _datasrt _blcksrt _EVENT12;

	if first._EVENT12 then
		totcount=0;
```

```
	totcount=totcount+count;

	if last._EVENT12;
run;

data _pct12(drop=totcount);
	merge _pct12 _miss12;
	by _datasrt _blcksrt _EVENT12;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf12;
	by _datasrt _cat;
run;

proc sort data=_denomin12;
	by _datasrt _cat;
run;

data _denomin12;
	merge _denomf12(in=_inframe) _denomin12;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=4;
run;

proc sort data=_pct12;
	by _datasrt _cat;
run;

data _pct12;
	if 0 then
		set _basetemplate;
	merge _denomin12(in=_a) _pct12;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT12 ";
	_vrlabel=" ";
	_rwlabel="Withdrawn after Dose 2 and before 1-month post(*ESC*){unicode 2013}Dose 2 visit ";

	if _EVENT12=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT12=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;
```

```
    if _catord=. then
        _catord=9997;
run;

proc sort data=_pct12;
    by _datasrt _blcksrt _catord _EVENT12 _trt _cat;
run;

data _base12;
    length _catlabl $200;
    set _pct12 end=eof;
    by _datasrt _blcksrt _catord _EVENT12 _trt _cat;
    retain _rowsrt 2 _rowmax 0;
    array _trtcnt(*) _trt1-_trt4;
    drop _rowmax _cpct;
    length _cpct $100;
    _cpct=' ';
    _module='mcatstat';

    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*  if length(_cvalue) < 13 then */
/*      do; */
/*          substr(_cvalue, 13, 1)='A0'x; */
/*      end; */

    if first._EVENT12 then
        do;
            _rowsrt=_rowsrt + 1;
            _rowmax=max(_rowsrt, _rowmax);
        end;
```

```
        _datatyp='data';
        _indent=0;
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
                _rwlabel=' ';
        _indent=4;
        _dptindt=0;

        if _trt=3 +1 then
                _trt=9999;

        if eof then
                call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 13 */
data _anal13;
        length _EVENT13 8;
        set _data1;
        where same and _EVENT13 is not missing;
        _blcksrt=4;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
                delete;
        output;
run;

proc sort data=_anal13;
        by _datasrt _blcksrt _EVENT13 _trt _cat;
run;

data _temp13;
        set _anal13;
        output;
run;

proc sort data=_temp13 out=_temp913 nodupkey;
        by _datasrt _blcksrt _cat _EVENT13 _trt usubjid;
        ;
run;

proc freq data=_temp913;
        format _EVENT13;
        tables _datasrt*_blcksrt*_cat * _EVENT13 * _trt / sparse norow nocol nopercent
                out=_pct13(drop=percent);
run;
```

```
proc sort data=_anal13 out=_denom13(keep=_datasrt _cat) nodupkey;
      ;
      by _datasrt _cat;
run;

data _denom13;
      set _denom13;
      by _datasrt _cat;
      label count='count';
      _trt=1;
      count=&_trt1.;
      output;
      _trt=2;
      count=&_trt2.;
      output;
      _trt=3;
      count=&_trt3.;
      output;
run;

data _denomf13;
      _datasrt=1;
      set _bydat1(keep=);
      * All treatment groups ;
      _trt1=0;
      _trt2=0;
      _trt3=0;
      * _CAT is the subgroup variable ;
      _cat=1;
      output;
run;

proc transpose data=_denom13 out=_denomin13(drop=_name_ _label_) prefix=_trt;
      by _datasrt _cat;
      var count;
      id _trt;
run;

data _frame13;
      _datasrt=1;
      set _bydat1(keep=);
      _blcksrt=4;
      length _EVENT13 8;
      _catLabl=" ";
      _trt=1;
      _EVENT13=1;
      _catord=1;
      _cat=1;
      output;
      _trt=2;
      _EVENT13=1;
      _catord=1;
      _cat=1;
      output;
```

```
        _trt=3;
        _EVENT13=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame13;
        by _datasrt _blcksrt _cat _EVENT13 _trt;
run;

proc sort data=_pct13;
        by _datasrt _blcksrt _cat _EVENT13 _trt;
run;

data _pct13;
        merge _frame13(in=_inframe) _pct13;
        by _datasrt _blcksrt _cat _EVENT13 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct13;
        by _datasrt _blcksrt _EVENT13;
run;

data _miss13(keep=_datasrt _blcksrt _EVENT13 totcount);
        set _pct13;
        where _EVENT13=9998;
        retain totcount;
        by _datasrt _blcksrt _EVENT13;

        if first._EVENT13 then
                totcount=0;
        totcount=totcount+count;

        if last._EVENT13;
run;

data _pct13(drop=totcount);
        merge _pct13 _miss13;
        by _datasrt _blcksrt _EVENT13;

        if totcount=0 then
                delete;
run;

proc sort data=_denomf13;
        by _datasrt _cat;
run;
```

```
proc sort data=_denomin13;
	by _datasrt _cat;
run;

data _denomin13;
	merge _denomf13(in=_inframe) _denomin13;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=4;
run;

proc sort data=_pct13;
	by _datasrt _cat;
run;

data _pct13;
	if 0 then
		set _basetemplate;
	merge _denomin13(in=_a) _pct13;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT13 ";
	_vrlabel=" ";
	_rwlabel="Withdrawn after 1-month post(*ESC*){unicode 2013}Dose 2 visit ";

	if _EVENT13=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT13=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct13;
	by _datasrt _blcksrt _catord _EVENT13 _trt _cat;
run;

data _base13;
	length _catlabl $200;
	set _pct13 end=eof;
	by _datasrt _blcksrt _catord _EVENT13 _trt _cat;
	retain _rowsrt 3 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
```

```
_cpct=' ';
_module='mcatstat';

if count > . then
	_cvalue=put(count, 5.);
else
	_cvalue=put(0, 5.);

if _trt ne . then
	do;

		if _trtcnt(_trt) > 0 then
			do;
				percent=count / _trtcnt(_trt) * 100;

				if percent > 0 then
					do;

						if round(percent, 0.1) GE 0.1 then
							_cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
						else
							_cpct="(*ESC*){nbspace 1}(0.0)";
						_cvalue=trim(_cvalue)||_cpct;
					end;
			end;
	end;

/*	if length(_cvalue) < 13 then */
/*		do; */
/*			substr(_cvalue, 13, 1)='A0'x; */
/*		end; */

if first._EVENT13 then
	do;
		_rowsrt=_rowsrt + 1;
		_rowmax=max(_rowsrt, _rowmax);
	end;
_datatyp='data';
_indent=0;
_dptindt=0;
_vorder=1;
_rowjump=1;

if upcase(_rwlabel)='_NONE_' then
	_rwlabel=' ';
_indent=4;
_dptindt=0;

if _trt=3 +1 then
	_trt=9999;

if eof then
	call symput('_rowsrt', compress(put(_rowmax, 4.)));
_direct="TOP ";
```

```
        _p=2;
run;

/* Crit 14 */
data _anal14;
        length DSDECODN 8;
        set _data1;
        where same and DSDECODN is not missing;
        _blcksrt=4;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
                delete;
        output;
run;

proc sort data=_anal14;
        by _datasrt _blcksrt DSDECODN _trt _cat;
run;

data _temp14;
        set _anal14;
        output;
run;

proc sort data=_temp14 out=_temp914 nodupkey;
        by _datasrt _blcksrt _cat DSDECODN _trt usubjid;
        where RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not in (. 2)
                and (VAX101DT ne . or VAX102DT ne .) and (unblnddt=. or eosdcdt<unblnddt) and
                EOSDCDT ne EOTXDCDT;
run;

proc freq data=_temp914;
        format DSDECODN;
        tables _datasrt*_blcksrt*_cat * DSDECODN * _trt / sparse norow nocol nopercent
                out=_pct14(drop=percent);
run;

proc sort data=_anal14 out=_denom14(keep=_datasrt _cat) nodupkey;
        where RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not in (. 2)
                and (VAX101DT ne . or VAX102DT ne .) and (unblnddt=. or eosdcdt<unblnddt) and
                EOSDCDT ne EOTXDCDT;
        by _datasrt _cat;
run;

data _denom14;
        set _denom14;
        by _datasrt _cat;
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
```

```
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf14;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom14 out=_denomin14(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

proc sort data=_pct14 out=_expv14 (keep=_datasrt _blcksrt DSDECODN) nodupkey;
        by _datasrt _blcksrt DSDECODN;
run;

proc sort data=_expv14;
        by _datasrt _blcksrt DSDECODN;
run;

data _frame14;
        set _expv14;
        by _datasrt _blcksrt DSDECODN;

        if first._blcksrt then
                _catord=0;
        _catord + 1;
        _trt=1;
        _cat=1;
        output;
        _trt=2;
        _cat=1;
        output;
        _trt=3;
        _cat=1;
        output;
run;

proc sort data=_frame14;
        by _datasrt _blcksrt _cat DSDECODN _trt;
run;
```

```
proc sort data=_pct14;
	by _datasrt _blcksrt _cat DSDECODN _trt;
run;

data _pct14;
	merge _frame14(in=_inframe) _pct14;
	by _datasrt _blcksrt _cat DSDECODN _trt;

	if _inframe;

	if count=. then
		count=0;
run;

proc sort data=_pct14;
	by _datasrt _blcksrt DSDECODN;
run;

data _miss14(keep=_datasrt _blcksrt DSDECODN totcount);
	set _pct14;
	where DSDECODN=9998;
	retain totcount;
	by _datasrt _blcksrt DSDECODN;

	if first.DSDECODN then
		totcount=0;
	totcount=totcount+count;

	if last.DSDECODN;
run;

data _pct14(drop=totcount);
	merge _pct14 _miss14;
	by _datasrt _blcksrt DSDECODN;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf14;
	by _datasrt _cat;
run;

proc sort data=_denomin14;
	by _datasrt _cat;
run;

data _denomin14;
	merge _denomf14(in=_inframe) _denomin14;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=4;
```

```
run;

proc sort data=_pct14;
	by _datasrt _cat;
run;

data _pct14;
	if 0 then
		set _basetemplate;
	merge _denomin14(in=_a) _pct14;
	by _datasrt _cat;

	if _a;
	_varname="DSDECODN ";
	_vrlabel="Reason for withdrawal from the study ";
	_rwlabel=put(DSDECODN, dsdecod.);

	if DSDECODN=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if DSDECODN=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct14;
	by _datasrt _blcksrt _catord DSDECODN _trt _cat;
run;

data _base14;
	length _catlabl $200;
	set _pct14 end=eof;
	by _datasrt _blcksrt _catord DSDECODN _trt _cat;
	retain _rowsrt 4 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
	else
		_cvalue=put(0, 5.);

	if _trt ne . then
		do;
```

```
            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*      if length(_cvalue) < 13 then */
/*          do; */
                *------------------------------------------------------------------------;
                * Put character A0x at right most character to pad text;
                *------------------------------------------------------------------------;
/*              substr(_cvalue, 13, 1)='A0'x; */
/*          end; */

    if first.DSDECODN then
        do;
            _rowsrt=_rowsrt + 1;
            _rowmax=max(_rowsrt, _rowmax);
        end;
    _datatyp='data';
    _indent=0;
    _dptindt=0;
    _vorder=1;
    _rowjump=1;

    if upcase(_rwlabel)='_NONE_' then
        _rwlabel=' ';
    _indent=8;
    _dptindt=4;

    if _trt=3 +1 then
        _trt=9999;

    if eof then
        call symput('_rowsrt', compress(put(_rowmax, 4.)));
    _direct="TOP ";
    _p=2;
run;

/* Crit 15 */
data _anal15;
    length _EVENT15 8;
    set _data1;
```

```
        where same and _EVENT15 is not missing;
        _blcksrt=5;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
              delete;
        output;
run;

proc sort data=_anal15;
        by _datasrt _blcksrt _EVENT15 _trt _cat;
run;

data _temp15;
        set _anal15;
        output;
run;

proc sort data=_temp15 out=_temp915 nodupkey;
        by _datasrt _blcksrt _cat _EVENT15 _trt usubjid;
        ;
run;

proc freq data=_temp915;
        format _EVENT15;
        tables _datasrt*_blcksrt*_cat * _EVENT15 * _trt / sparse norow nocol nopercent
              out=_pct15(drop=percent);
run;

proc sort data=_anal15 out=_denom15(keep=_datasrt _cat) nodupkey;
        ;
        by _datasrt _cat;
run;

data _denom15;
        set _denom15;
        by _datasrt _cat;
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf15;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
```

```
        _trt1=0;
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom15 out=_denomin15(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

data _frame15;
        _datasrt=1;
        set _bydat1(keep=);
        _blcksrt=5;
        length _EVENT15 8;
        _catLabl=" ";
        _trt=1;
        _EVENT15=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT15=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT15=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame15;
        by _datasrt _blcksrt _cat _EVENT15 _trt;
run;

proc sort data=_pct15;
        by _datasrt _blcksrt _cat _EVENT15 _trt;
run;

data _pct15;
        merge _frame15(in=_inframe) _pct15;
        by _datasrt _blcksrt _cat _EVENT15 _trt;

        if _inframe;

        if count=. then
                count=0;
run;
```

```
proc sort data=_pct15;
	by _datasrt _blcksrt _EVENT15;
run;

data _miss15(keep=_datasrt _blcksrt _EVENT15 totcount);
	set _pct15;
	where _EVENT15=9998;
	retain totcount;
	by _datasrt _blcksrt _EVENT15;

	if first._EVENT15 then
		totcount=0;
	totcount=totcount+count;

	if last._EVENT15;
run;

data _pct15(drop=totcount);
	merge _pct15 _miss15;
	by _datasrt _blcksrt _EVENT15;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf15;
	by _datasrt _cat;
run;

proc sort data=_denomin15;
	by _datasrt _cat;
run;

data _denomin15;
	merge _denomf15(in=_inframe) _denomin15;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=5;
run;

proc sort data=_pct15;
	by _datasrt _cat;
run;

data _pct15;
	if 0 then
		set _basetemplate;
	merge _denomin15(in=_a) _pct15;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT15 ";
```

```
	_vrlabel="Open-label follow-up period ";
	_rwlabel="Originally randomized to BNT162b2 ";

	if _EVENT15=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT15=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct15;
	by _datasrt _blcksrt _catord _EVENT15 _trt _cat;
run;

data _base15;
	length _catlabl $200;
	set _pct15 end=eof;
	by _datasrt _blcksrt _catord _EVENT15 _trt _cat;
	retain _rowsrt 0 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
	else
		_cvalue=put(0, 5.);

	if _trt ne . then
		do;

			if _trtcnt(_trt) > 0 then
				do;
					percent=count / _trtcnt(_trt) * 100;

					if percent > 0 then
						do;

							if round(percent, 0.1) GE 0.1 then
								_cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
							else
								_cpct="(*ESC*){nbspace 1}(0.0)";
							_cvalue=trim(_cvalue)||_cpct;
						end;
```

```
                    end;
            end;

/*      if length(_cvalue) < 13 then */
/*          do; */
/*              substr(_cvalue, 13, 1)='A0'x; */
/*          end; */

        if first._EVENT15 then
            do;
                _rowsrt=_rowsrt + 1;
                _rowmax=max(_rowsrt, _rowmax);
            end;
        _datatyp='data';
        _indent=0;
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
            _rwlabel=' ';
        _indent=2;
        _dptindt=0;

        if _trt=3 +1 then
            _trt=9999;

        if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 16 */
data _anal16;
        length _EVENT16 8;
        set _data1;
        where same and _EVENT16 is not missing;
        _blcksrt=5;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
            delete;
        output;
run;

proc sort data=_anal16;
        by _datasrt _blcksrt _EVENT16 _trt _cat;
run;

data _temp16;
        set _anal16;
        output;
```

```
run;

proc sort data=_temp16 out=_temp916 nodupkey;
      by _datasrt _blcksrt _cat _EVENT16 _trt usubjid;
      ;
run;

proc freq data=_temp916;
      format _EVENT16;
      tables _datasrt*_blcksrt*_cat * _EVENT16 * _trt / sparse norow nocol nopercent
            out=_pct16(drop=percent);
run;

proc sort data=_anal16 out=_denom16(keep=_datasrt _cat) nodupkey;
      ;
      by _datasrt _cat;
run;

data _denom16;
      set _denom16;
      by _datasrt _cat;
      label count='count';
      _trt=1;
      count=&_trt1.;
      output;
      _trt=2;
      count=&_trt2.;
      output;
      _trt=3;
      count=&_trt3.;
      output;
run;

data _denomf16;
      _datasrt=1;
      set _bydat1(keep=);
      * All treatment groups ;
      _trt1=0;
      _trt2=0;
      _trt3=0;
      * _CAT is the subgroup variable ;
      _cat=1;
      output;
run;

proc transpose data=_denom16 out=_denomin16(drop=_name_ _label_) prefix=_trt;
      by _datasrt _cat;
      var count;
      id _trt;
run;

data _frame16;
      _datasrt=1;
      set _bydat1(keep=);
```

```
        _blcksrt=5;
        length _EVENT16 8;
        _catLabl=" ";
        _trt=1;
        _EVENT16=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT16=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT16=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame16;
        by _datasrt _blcksrt _cat _EVENT16 _trt;
run;

proc sort data=_pct16;
        by _datasrt _blcksrt _cat _EVENT16 _trt;
run;

data _pct16;
        merge _frame16(in=_inframe) _pct16;
        by _datasrt _blcksrt _cat _EVENT16 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct16;
        by _datasrt _blcksrt _EVENT16;
run;

data _miss16(keep=_datasrt _blcksrt _EVENT16 totcount);
        set _pct16;
        where _EVENT16=9998;
        retain totcount;
        by _datasrt _blcksrt _EVENT16;

        if first._EVENT16 then
                totcount=0;
        totcount=totcount+count;

        if last._EVENT16;
run;
```

```
data _pct16(drop=totcount);
	merge _pct16 _miss16;
	by _datasrt _blcksrt _EVENT16;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf16;
	by _datasrt _cat;
run;

proc sort data=_denomin16;
	by _datasrt _cat;
run;

data _denomin16;
	merge _denomf16(in=_inframe) _denomin16;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=5;
run;

proc sort data=_pct16;
	by _datasrt _cat;
run;

data _pct16;
	if 0 then
		set _basetemplate;
	merge _denomin16(in=_a) _pct16;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT16 ";
	_vrlabel=" ";
	_rwlabel="Received Dose 2/unplanned dose ";

	if _EVENT16=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT16=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;
```

```
proc sort data=_pct16;
	by _datasrt _blcksrt _catord _EVENT16 _trt _cat;
run;

data _base16;
	length _catlabl $200;
	set _pct16 end=eof;
	by _datasrt _blcksrt _catord _EVENT16 _trt _cat;
	retain _rowsrt 1 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
	else
		_cvalue=put(0, 5.);

	if _trt ne . then
		do;

			if _trtcnt(_trt) > 0 then
				do;
					percent=count / _trtcnt(_trt) * 100;

					if percent > 0 then
						do;

							if round(percent, 0.1) GE 0.1 then
								_cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
							else
								_cpct="(*ESC*){nbspace 1}(0.0)";
							_cvalue=trim(_cvalue)||_cpct;
						end;
				end;
		end;

/*	if length(_cvalue) < 13 then */
/*		do; */
/*			substr(_cvalue, 13, 1)='A0'x; */
/*		end; */

	if first._EVENT16 then
		do;
			_rowsrt=_rowsrt + 1;
			_rowmax=max(_rowsrt, _rowmax);
		end;
	_datatyp='data';
	_indent=0;
	_dptindt=0;
	_vorder=1;
```

```
	_rowjump=1;

	if upcase(_rwlabel)='_NONE_' then
		_rwlabel=' ';
	_indent=4;
	_dptindt=0;

	if _trt=3 +1 then
		_trt=9999;

	if eof then
		call symput('_rowsrt', compress(put(_rowmax, 4.)));
	_direct="TOP ";
	_p=2;
run;

/* Crit 17 */
data _anal17;
	length _EVENT17 8;
	set _data1;
	where same and _EVENT17 is not missing;
	_blcksrt=5;
	_cnt=1;
	_cat=1;

	if _trt <=0 then
		delete;
	output;
run;

proc sort data=_anal17;
	by _datasrt _blcksrt _EVENT17 _trt _cat;
run;

data _temp17;
	set _anal17;
	output;
run;

proc sort data=_temp17 out=_temp917 nodupkey;
	by _datasrt _blcksrt _cat _EVENT17 _trt usubjid;
	;
run;

proc freq data=_temp917;
	format _EVENT17;
	tables _datasrt*_blcksrt*_cat * _EVENT17 * _trt / sparse norow nocol nopercent
		out=_pct17(drop=percent);
run;

proc sort data=_anal17 out=_denom17(keep=_datasrt _cat) nodupkey;
	;
	by _datasrt _cat;
run;
```

```
data _denom17;
	set _denom17;
	by _datasrt _cat;
	label count='count';
	_trt=1;
	count=&_trt1.;
	output;
	_trt=2;
	count=&_trt2.;
	output;
	_trt=3;
	count=&_trt3.;
	output;
run;

data _denomf17;
	_datasrt=1;
	set _bydat1(keep=);
	* All treatment groups ;
	_trt1=0;
	_trt2=0;
	_trt3=0;
	* _CAT is the subgroup variable ;
	_cat=1;
	output;
run;

proc transpose data=_denom17 out=_denomin17(drop=_name_ _label_) prefix=_trt;
	by _datasrt _cat;
	var count;
	id _trt;
run;

data _frame17;
	_datasrt=1;
	set _bydat1(keep=);
	_blcksrt=5;
	length _EVENT17 8;
	_catLabl=" ";
	_trt=1;
	_EVENT17=1;
	_catord=1;
	_cat=1;
	output;
	_trt=2;
	_EVENT17=1;
	_catord=1;
	_cat=1;
	output;
	_trt=3;
	_EVENT17=1;
	_catord=1;
	_cat=1;
```

```
	output;
run;

proc sort data=_frame17;
	by _datasrt _blcksrt _cat _EVENT17 _trt;
run;

proc sort data=_pct17;
	by _datasrt _blcksrt _cat _EVENT17 _trt;
run;

data _pct17;
	merge _frame17(in=_inframe) _pct17;
	by _datasrt _blcksrt _cat _EVENT17 _trt;

	if _inframe;

	if count=. then
		count=0;
run;

proc sort data=_pct17;
	by _datasrt _blcksrt _EVENT17;
run;

data _miss17(keep=_datasrt _blcksrt _EVENT17 totcount);
	set _pct17;
	where _EVENT17=9998;
	retain totcount;
	by _datasrt _blcksrt _EVENT17;

	if first._EVENT17 then
		totcount=0;
	totcount=totcount+count;

	if last._EVENT17;
run;

data _pct17(drop=totcount);
	merge _pct17 _miss17;
	by _datasrt _blcksrt _EVENT17;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf17;
	by _datasrt _cat;
run;

proc sort data=_denomin17;
	by _datasrt _cat;
run;
```

```
data _denomin17;
	merge _denomf17(in=_inframe) _denomin17;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=5;
run;

proc sort data=_pct17;
	by _datasrt _cat;
run;

data _pct17;
	if 0 then
		set _basetemplate;
	merge _denomin17(in=_a) _pct17;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT17 ";
	_vrlabel=" ";
	_rwlabel="Completed 1-month post(*ESC*){unicode 2013}Dose 2 visit ";

	if _EVENT17=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT17=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct17;
	by _datasrt _blcksrt _catord _EVENT17 _trt _cat;
run;

data _base17;
	length _catlabl $200;
	set _pct17 end=eof;
	by _datasrt _blcksrt _catord _EVENT17 _trt _cat;
	retain _rowsrt 2 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
```

```
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*  if length(_cvalue) < 13 then */
/*      do; */
/*          substr(_cvalue, 13, 1)='A0'x; */
/*      end; */

    if first._EVENT17 then
        do;
            _rowsrt=_rowsrt + 1;
            _rowmax=max(_rowsrt, _rowmax);
        end;
    _datatyp='data';
    _indent=0;
    _dptindt=0;
    _vorder=1;
    _rowjump=1;

    if upcase(_rwlabel)='_NONE_' then
        _rwlabel=' ';
    _indent=4;
    _dptindt=0;

    if _trt=3 +1 then
        _trt=9999;

    if eof then
        call symput('_rowsrt', compress(put(_rowmax, 4.)));
    _direct="TOP ";
    _p=2;
run;

/* Crit 18 */
```

```
data _anal18;
	length _EVENT18 8;
	set _data1;
	where same and _EVENT18 is not missing;
	_blcksrt=5;
	_cnt=1;
	_cat=1;

	if _trt <=0 then
		delete;
	output;
run;

proc sort data=_anal18;
	by _datasrt _blcksrt _EVENT18 _trt _cat;
run;

data _temp18;
	set _anal18;
	output;
run;

proc sort data=_temp18 out=_temp918 nodupkey;
	by _datasrt _blcksrt _cat _EVENT18 _trt usubjid;
	;
run;

proc freq data=_temp918;
	format _EVENT18;
	tables _datasrt*_blcksrt*_cat * _EVENT18 * _trt / sparse norow nocol nopercent
		out=_pct18(drop=percent);
run;

proc sort data=_anal18 out=_denom18(keep=_datasrt _cat) nodupkey;
	;
	by _datasrt _cat;
run;

data _denom18;
	set _denom18;
	by _datasrt _cat;
	label count='count';
	_trt=1;
	count=&_trt1.;
	output;
	_trt=2;
	count=&_trt2.;
	output;
	_trt=3;
	count=&_trt3.;
	output;
run;

data _denomf18;
```

```
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom18 out=_denomin18(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

data _frame18;
        _datasrt=1;
        set _bydat1(keep=);
        _blcksrt=5;
        length _EVENT18 8;
        _catLabl=" ";
        _trt=1;
        _EVENT18=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT18=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT18=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame18;
        by _datasrt _blcksrt _cat _EVENT18 _trt;
run;

proc sort data=_pct18;
        by _datasrt _blcksrt _cat _EVENT18 _trt;
run;

data _pct18;
        merge _frame18(in=_inframe) _pct18;
        by _datasrt _blcksrt _cat _EVENT18 _trt;

        if _inframe;
```

```
    if count=. then
        count=0;
run;

proc sort data=_pct18;
    by _datasrt _blcksrt _EVENT18;
run;

data _miss18(keep=_datasrt _blcksrt _EVENT18 totcount);
    set _pct18;
    where _EVENT18=9998;
    retain totcount;
    by _datasrt _blcksrt _EVENT18;

    if first._EVENT18 then
        totcount=0;
    totcount=totcount+count;

    if last._EVENT18;
run;

data _pct18(drop=totcount);
    merge _pct18 _miss18;
    by _datasrt _blcksrt _EVENT18;

    if totcount=0 then
        delete;
run;

proc sort data=_denomf18;
    by _datasrt _cat;
run;

proc sort data=_denomin18;
    by _datasrt _cat;
run;

data _denomin18;
    merge _denomf18(in=_inframe) _denomin18;
    by _datasrt _cat;

    if _inframe;
    _blcksrt=5;
run;

proc sort data=_pct18;
    by _datasrt _cat;
run;

data _pct18;
    if 0 then
        set _basetemplate;
    merge _denomin18(in=_a) _pct18;
    by _datasrt _cat;
```

```
	if _a;
	_varname="_EVENT18 ";
	_vrlabel=" ";
	_rwlabel="Completed 6-month post(*ESC*){unicode 2013}Dose 2 visit ";

	if _EVENT18=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT18=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct18;
	by _datasrt _blcksrt _catord _EVENT18 _trt _cat;
run;

data _base18;
	length _catlabl $200;
	set _pct18 end=eof;
	by _datasrt _blcksrt _catord _EVENT18 _trt _cat;
	retain _rowsrt 3 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
	else
		_cvalue=put(0, 5.);

	if _trt ne . then
		do;

			if _trtcnt(_trt) > 0 then
				do;
					percent=count / _trtcnt(_trt) * 100;

					if percent > 0 then
						do;

							if round(percent, 0.1) GE 0.1 then
								_cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
							else
```

```
                                        _cpct="(*ESC*){nbspace 1}(0.0)";
                                    _cvalue=trim(_cvalue)||_cpct;
                                end;
                        end;
                end;

/*      if length(_cvalue) < 13 then */
/*              do; */
/*                      substr(_cvalue, 13, 1)='A0'x; */
/*              end; */

        if first._EVENT18 then
                do;
                        _rowsrt=_rowsrt + 1;
                        _rowmax=max(_rowsrt, _rowmax);
                end;
        _datatyp='data';
        _indent=0;
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
                _rwlabel=' ';
        _indent=4;
        _dptindt=0;

        if _trt=3 +1 then
                _trt=9999;

        if eof then
                call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 19 */
data _anal19;
        length _EVENT19 8;
        set _data1;
        where same and _EVENT19 is not missing;
        _blcksrt=5;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
                delete;
        output;
run;

proc sort data=_anal19;
        by _datasrt _blcksrt _EVENT19 _trt _cat;
run;
```

```
data _temp19;
      set _anal19;
      output;
run;

proc sort data=_temp19 out=_temp919 nodupkey;
      by _datasrt _blcksrt _cat _EVENT19 _trt usubjid;
      ;
run;

proc freq data=_temp919;
      format _EVENT19;
      tables _datasrt*_blcksrt*_cat * _EVENT19 * _trt / sparse norow nocol nopercent
            out=_pct19(drop=percent);
run;

proc sort data=_anal19 out=_denom19(keep=_datasrt _cat) nodupkey;
      ;
      by _datasrt _cat;
run;

data _denom19;
      set _denom19;
      by _datasrt _cat;
      label count='count';
      _trt=1;
      count=&_trt1.;
      output;
      _trt=2;
      count=&_trt2.;
      output;
      _trt=3;
      count=&_trt3.;
      output;
run;

data _denomf19;
      _datasrt=1;
      set _bydat1(keep=);
      * All treatment groups ;
      _trt1=0;
      _trt2=0;
      _trt3=0;
      * _CAT is the subgroup variable ;
      _cat=1;
      output;
run;

proc transpose data=_denom19 out=_denomin19(drop=_name_ _label_) prefix=_trt;
      by _datasrt _cat;
      var count;
      id _trt;
run;
```

```
data _frame19;
	_datasrt=1;
	set _bydat1(keep=);
	_blcksrt=5;
	length _EVENT19 8;
	_catLabl=" ";
	_trt=1;
	_EVENT19=1;
	_catord=1;
	_cat=1;
	output;
	_trt=2;
	_EVENT19=1;
	_catord=1;
	_cat=1;
	output;
	_trt=3;
	_EVENT19=1;
	_catord=1;
	_cat=1;
	output;
run;

proc sort data=_frame19;
	by _datasrt _blcksrt _cat _EVENT19 _trt;
run;

proc sort data=_pct19;
	by _datasrt _blcksrt _cat _EVENT19 _trt;
run;

data _pct19;
	merge _frame19(in=_inframe) _pct19;
	by _datasrt _blcksrt _cat _EVENT19 _trt;

	if _inframe;

	if count=. then
		count=0;
run;

proc sort data=_pct19;
	by _datasrt _blcksrt _EVENT19;
run;

data _miss19(keep=_datasrt _blcksrt _EVENT19 totcount);
	set _pct19;
	where _EVENT19=9998;
	retain totcount;
	by _datasrt _blcksrt _EVENT19;

	if first._EVENT19 then
		totcount=0;
	totcount=totcount+count;
```

```
        if last._EVENT19;
run;

data _pct19(drop=totcount);
        merge _pct19 _miss19;
        by _datasrt _blcksrt _EVENT19;

        if totcount=0 then
                delete;
run;

proc sort data=_denomf19;
        by _datasrt _cat;
run;

proc sort data=_denomin19;
        by _datasrt _cat;
run;

data _denomin19;
        merge _denomf19(in=_inframe) _denomin19;
        by _datasrt _cat;

        if _inframe;
        _blcksrt=5;
run;

proc sort data=_pct19;
        by _datasrt _cat;
run;

data _pct19;
        if 0 then
                set _basetemplate;
        merge _denomin19(in=_a) _pct19;
        by _datasrt _cat;

        if _a;
        _varname="_EVENT19 ";
        _vrlabel=" ";
        _rwlabel="Withdrawn from the study ";

        if _EVENT19=9998 then
                do;
                        _rwlabel="Missing ";
                        _catord=9998;
                end;
        else if _EVENT19=9999 then
                do;
                        _rwlabel="Total ";
                        _catord=9999;
                end;
```

```
	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct19;
	by _datasrt _blcksrt _catord _EVENT19 _trt _cat;
run;

data _base19;
	length _catlabl $200;
	set _pct19 end=eof;
	by _datasrt _blcksrt _catord _EVENT19 _trt _cat;
	retain _rowsrt 4 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
	else
		_cvalue=put(0, 5.);

	if _trt ne . then
		do;

			if _trtcnt(_trt) > 0 then
				do;
					percent=count / _trtcnt(_trt) * 100;

					if percent > 0 then
						do;

							if round(percent, 0.1) GE 0.1 then
								_cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
							else
								_cpct="(*ESC*){nbspace 1}(0.0)";
							_cvalue=trim(_cvalue)||_cpct;
						end;
				end;
		end;

/*	if length(_cvalue) < 13 then */
/*		do; */
/*			substr(_cvalue, 13, 1)='A0'x; */
/*		end; */

	if first._EVENT19 then
		do;
			_rowsrt=_rowsrt + 1;
			_rowmax=max(_rowsrt, _rowmax);
		end;
	_datatyp='data';
```

```
        _indent=0;
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
                _rwlabel=' ';
        _indent=4;
        _dptindt=0;

        if _trt=3 +1 then
                _trt=9999;

        if eof then
                call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 20 */
data _anal20;
        length _EVENT20 8;
        set _data1;
        where same and _EVENT20 is not missing;
        _blcksrt=5;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
                delete;
        output;
run;

proc sort data=_anal20;
        by _datasrt _blcksrt _EVENT20 _trt _cat;
run;

data _temp20;
        set _anal20;
        output;
run;

proc sort data=_temp20 out=_temp920 nodupkey;
        by _datasrt _blcksrt _cat _EVENT20 _trt usubjid;
        ;
run;

proc freq data=_temp920;
        format _EVENT20;
        tables _datasrt*_blcksrt*_cat * _EVENT20 * _trt / sparse norow nocol nopercent
                out=_pct20(drop=percent);
run;

proc sort data=_anal20 out=_denom20(keep=_datasrt _cat) nodupkey;
```

```
        ;
        by _datasrt _cat;
run;

data _denom20;
        set _denom20;
        by _datasrt _cat;
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf20;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom20 out=_denomin20(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

data _frame20;
        _datasrt=1;
        set _bydat1(keep=);
        _blcksrt=5;
        length _EVENT20 8;
        _catLabl=" ";
        _trt=1;
        _EVENT20=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT20=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
```

```
        _EVENT20=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame20;
        by _datasrt _blcksrt _cat _EVENT20 _trt;
run;

proc sort data=_pct20;
        by _datasrt _blcksrt _cat _EVENT20 _trt;
run;

data _pct20;
        merge _frame20(in=_inframe) _pct20;
        by _datasrt _blcksrt _cat _EVENT20 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct20;
        by _datasrt _blcksrt _EVENT20;
run;

data _miss20(keep=_datasrt _blcksrt _EVENT20 totcount);
        set _pct20;
        where _EVENT20=9998;
        retain totcount;
        by _datasrt _blcksrt _EVENT20;

        if first._EVENT20 then
                totcount=0;
        totcount=totcount+count;

        if last._EVENT20;
run;

data _pct20(drop=totcount);
        merge _pct20 _miss20;
        by _datasrt _blcksrt _EVENT20;

        if totcount=0 then
                delete;
run;

proc sort data=_denomf20;
        by _datasrt _cat;
run;

proc sort data=_denomin20;
```

```
    by _datasrt _cat;
run;

data _denomin20;
    merge _denomf20(in=_inframe) _denomin20;
    by _datasrt _cat;

    if _inframe;
    _blcksrt=5;
run;

proc sort data=_pct20;
    by _datasrt _cat;
run;

data _pct20;
    if 0 then
        set _basetemplate;
    merge _denomin20(in=_a) _pct20;
    by _datasrt _cat;

    if _a;
    _varname="_EVENT20 ";
    _vrlabel=" ";
    _rwlabel="Withdrawn before 6-month post(*ESC*){unicode 2013}Dose 2 visit ";

    if _EVENT20=9998 then
        do;
            _rwlabel="Missing ";
            _catord=9998;
        end;
    else if _EVENT20=9999 then
        do;
            _rwlabel="Total ";
            _catord=9999;
        end;

    if _catord=. then
        _catord=9997;
run;

proc sort data=_pct20;
    by _datasrt _blcksrt _catord _EVENT20 _trt _cat;
run;

data _base20;
    length _catlabl $200;
    set _pct20 end=eof;
    by _datasrt _blcksrt _catord _EVENT20 _trt _cat;
    retain _rowsrt 5 _rowmax 0;
    array _trtcnt(*) _trt1- _trt4;
    drop _rowmax _cpct;
    length _cpct $100;
    _cpct=' ';
```

```
_module='mcatstat';

if count > . then
      _cvalue=put(count, 5.);
else
      _cvalue=put(0, 5.);

if _trt ne . then
      do;

            if _trtcnt(_trt) > 0 then
                  do;
                        percent=count / _trtcnt(_trt) * 100;

                        if percent > 0 then
                              do;

                                    if round(percent, 0.1) GE 0.1 then
                                          _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                                    else
                                          _cpct="(*ESC*){nbspace 1}(0.0)";
                                    _cvalue=trim(_cvalue)||_cpct;
                              end;
                  end;
      end;

/*    if length(_cvalue) < 13 then */
/*          do; */
/*                substr(_cvalue, 13, 1)='A0'x; */
/*          end; */

      if first._EVENT20 then
            do;
                  _rowsrt=_rowsrt + 1;
                  _rowmax=max(_rowsrt, _rowmax);
            end;
      _datatyp='data';
      _indent=0;
      _dptindt=0;
      _vorder=1;
      _rowjump=1;

      if upcase(_rwlabel)='_NONE_' then
            _rwlabel=' ';
      _indent=6;
      _dptindt=0;

      if _trt=3 +1 then
            _trt=9999;

      if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
      _direct="TOP ";
      _p=2;
```

```
run;

/* Crit 21 */
data _anal21;
	length _EVENT21 8;
	set _data1;
	where same and _EVENT21 is not missing;
	_blcksrt=5;
	_cnt=1;
	_cat=1;

	if _trt <=0 then
		delete;
	output;
run;

proc sort data=_anal21;
	by _datasrt _blcksrt _EVENT21 _trt _cat;
run;

data _temp21;
	set _anal21;
	output;
run;

proc sort data=_temp21 out=_temp921 nodupkey;
	by _datasrt _blcksrt _cat _EVENT21 _trt usubjid;
	;
run;

proc freq data=_temp921;
	format _EVENT21;
	tables _datasrt*_blcksrt*_cat * _EVENT21 * _trt / sparse norow nocol nopercent
		out=_pct21(drop=percent);
run;

proc sort data=_anal21 out=_denom21(keep=_datasrt _cat) nodupkey;
	;
	by _datasrt _cat;
run;

data _denom21;
	set _denom21;
	by _datasrt _cat;
	label count='count';
	_trt=1;
	count=&_trt1.;
	output;
	_trt=2;
	count=&_trt2.;
	output;
	_trt=3;
	count=&_trt3.;
	output;
```

```
run;

data _denomf21;
      _datasrt=1;
      set _bydat1(keep=);
      * All treatment groups ;
      _trt1=0;
      _trt2=0;
      _trt3=0;
      * _CAT is the subgroup variable ;
      _cat=1;
      output;
run;

proc transpose data=_denom21 out=_denomin21(drop=_name_ _label_) prefix=_trt;
      by _datasrt _cat;
      var count;
      id _trt;
run;

data _frame21;
      _datasrt=1;
      set _bydat1(keep=);
      _blcksrt=5;
      length _EVENT21 8;
      _catLabl=" ";
      _trt=1;
      _EVENT21=1;
      _catord=1;
      _cat=1;
      output;
      _trt=2;
      _EVENT21=1;
      _catord=1;
      _cat=1;
      output;
      _trt=3;
      _EVENT21=1;
      _catord=1;
      _cat=1;
      output;
run;

proc sort data=_frame21;
      by _datasrt _blcksrt _cat _EVENT21 _trt;
run;

proc sort data=_pct21;
      by _datasrt _blcksrt _cat _EVENT21 _trt;
run;

data _pct21;
      merge _frame21(in=_inframe) _pct21;
      by _datasrt _blcksrt _cat _EVENT21 _trt;
```

```
    if _inframe;

    if count=. then
        count=0;
run;

proc sort data=_pct21;
    by _datasrt _blcksrt _EVENT21;
run;

data _miss21(keep=_datasrt _blcksrt _EVENT21 totcount);
    set _pct21;
    where _EVENT21=9998;
    retain totcount;
    by _datasrt _blcksrt _EVENT21;

    if first._EVENT21 then
        totcount=0;
    totcount=totcount+count;

    if last._EVENT21;
run;

data _pct21(drop=totcount);
    merge _pct21 _miss21;
    by _datasrt _blcksrt _EVENT21;

    if totcount=0 then
        delete;
run;

proc sort data=_denomf21;
    by _datasrt _cat;
run;

proc sort data=_denomin21;
    by _datasrt _cat;
run;

data _denomin21;
    merge _denomf21(in=_inframe) _denomin21;
    by _datasrt _cat;

    if _inframe;
    _blcksrt=5;
run;

proc sort data=_pct21;
    by _datasrt _cat;
run;

data _pct21;
    if 0 then
```

```
        set _basetemplate;
    merge _denomin21(in=_a) _pct21;
    by _datasrt _cat;

    if _a;
    _varname="_EVENT21 ";
    _vrlabel=" ";
    _rwlabel="Withdrawn after 6-month post(*ESC*){unicode 2013}Dose 2 visit ";

    if _EVENT21=9998 then
        do;
            _rwlabel="Missing ";
            _catord=9998;
        end;
    else if _EVENT21=9999 then
        do;
            _rwlabel="Total ";
            _catord=9999;
        end;

    if _catord=. then
        _catord=9997;
run;

proc sort data=_pct21;
    by _datasrt _blcksrt _catord _EVENT21 _trt _cat;
run;

data _base21;
    length _catlabl $200;
    set _pct21 end=eof;
    by _datasrt _blcksrt _catord _EVENT21 _trt _cat;
    retain _rowsrt 6 _rowmax 0;
    array _trtcnt(*) _trt1-_trt4;
    drop _rowmax _cpct;
    length _cpct $100;
    _cpct=' ';
    _module='mcatstat';

    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;
```

```
                                        if round(percent, 0.1) GE 0.1 then
                                            _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                                        else
                                            _cpct="(*ESC*){nbspace 1}(0.0)";
                                        _cvalue=trim(_cvalue)||_cpct;
                                    end;
                                end;
                        end;

/*      if length(_cvalue) < 13 then */
/*          do; */
/*              substr(_cvalue, 13, 1)='A0'x; */
/*          end; */

        if first._EVENT21 then
            do;
                _rowsrt=_rowsrt + 1;
                _rowmax=max(_rowsrt, _rowmax);
            end;
        _datatyp='data';
        _indent=0;
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
            _rwlabel=' ';
        _indent=6;
        _dptindt=0;

        if _trt=3 +1 then
            _trt=9999;

        if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 22 */
data _anal22;
        length DSDECODN 8;
        set _data1;
        where same and DSDECODN is not missing;
        _blcksrt=5;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
            delete;
        output;
run;

proc sort data=_anal22;
```

```
    by _datasrt _blcksrt DSDECODN _trt _cat;
run;

data _temp22;
    set _anal22;
    output;
run;

proc sort data=_temp22 out=_temp922 nodupkey;
    by _datasrt _blcksrt _cat DSDECODN _trt usubjid;
    where RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not in (. 2)
        and (VAX101DT ne . or VAX102DT ne .) and (unblnddt ne . and
        eosdcdt>=unblnddt) and index(arm, 'BNT');
run;

proc freq data=_temp922;
    format DSDECODN;
    tables _datasrt*_blcksrt*_cat * DSDECODN * _trt / sparse norow nocol nopercent
        out=_pct22(drop=percent);
run;

proc sort data=_anal22 out=_denom22(keep=_datasrt _cat) nodupkey;
    where RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not in (. 2)
        and (VAX101DT ne . or VAX102DT ne .) and (unblnddt ne . and
        eosdcdt>=unblnddt) and index(arm, 'BNT');
    by _datasrt _cat;
run;

data _denom22;
    set _denom22;
    by _datasrt _cat;
    label count='count';
    _trt=1;
    count=&_trt1.;
    output;
    _trt=2;
    count=&_trt2.;
    output;
    _trt=3;
    count=&_trt3.;
    output;
run;

data _denomf22;
    _datasrt=1;
    set _bydat1(keep=);
    * All treatment groups ;
    _trt1=0;
    _trt2=0;
    _trt3=0;
    * _CAT is the subgroup variable ;
    _cat=1;
    output;
run;
```

```
proc transpose data=_denom22 out=_denomin22(drop=_name_ _label_) prefix=_trt;
	by _datasrt _cat;
	var count;
	id _trt;
run;

proc sort data=_pct22 out=_expv22 (keep=_datasrt _blcksrt DSDECODN) nodupkey;
	by _datasrt _blcksrt DSDECODN;
run;

proc sort data=_expv22;
	by _datasrt _blcksrt DSDECODN;
run;

data _frame22;
	set _expv22;
	by _datasrt _blcksrt DSDECODN;

	if first._blcksrt then
		_catord=0;
	_catord + 1;
	_trt=1;
	_cat=1;
	output;
	_trt=2;
	_cat=1;
	output;
	_trt=3;
	_cat=1;
	output;
run;

proc sort data=_frame22;
	by _datasrt _blcksrt _cat DSDECODN _trt;
run;

proc sort data=_pct22;
	by _datasrt _blcksrt _cat DSDECODN _trt;
run;

data _pct22;
	merge _frame22(in=_inframe) _pct22;
	by _datasrt _blcksrt _cat DSDECODN _trt;

	if _inframe;

	if count=. then
		count=0;
run;

proc sort data=_pct22;
	by _datasrt _blcksrt DSDECODN;
run;
```

```
data _miss22(keep=_datasrt _blcksrt DSDECODN totcount);
	set _pct22;
	where DSDECODN=9998;
	retain totcount;
	by _datasrt _blcksrt DSDECODN;

	if first.DSDECODN then
		totcount=0;
	totcount=totcount+count;

	if last.DSDECODN;
run;

data _pct22(drop=totcount);
	merge _pct22 _miss22;
	by _datasrt _blcksrt DSDECODN;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf22;
	by _datasrt _cat;
run;

proc sort data=_denomin22;
	by _datasrt _cat;
run;

data _denomin22;
	merge _denomf22(in=_inframe) _denomin22;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=5;
run;

proc sort data=_pct22;
	by _datasrt _cat;
run;

data _pct22;
	if 0 then
		set _basetemplate;
	merge _denomin22(in=_a) _pct22;
	by _datasrt _cat;

	if _a;
	_varname="DSDECODN ";
	_vrlabel="Reason for withdrawal from the study ";
	_rwlabel=put(DSDECODN, dsdecod.);

	if DSDECODN=9998 then
```

```
        do;
            _rwlabel="Missing ";
            _catord=9998;
        end;
    else if DSDECODN=9999 then
        do;
            _rwlabel="Total ";
            _catord=9999;
        end;

    if _catord=. then
        _catord=9997;
run;

proc sort data=_pct22;
    by _datasrt _blcksrt _catord DSDECODN _trt _cat;
run;

data _base22;
    length _catlabl $200;
    set _pct22 end=eof;
    by _datasrt _blcksrt _catord DSDECODN _trt _cat;
    retain _rowsrt 7 _rowmax 0;
    array _trtcnt(*) _trt1-_trt4;
    drop _rowmax _cpct;
    length _cpct $100;
    _cpct=' ';
    _module='mcatstat';

    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*    if length(_cvalue) < 13 then */
```

```
/*          do; */
                *-------------------------------------------------------------------;
                * Put character A0x at right most character to pad text;
                *-------------------------------------------------------------------;
/*              substr(_cvalue, 13, 1)='A0'x; */
/*          end; */

      if first.DSDECODN then
            do;
                _rowsrt=_rowsrt + 1;
                _rowmax=max(_rowsrt, _rowmax);
            end;
      _datatyp='data';
      _indent=0;
      _dptindt=0;
      _vorder=1;
      _rowjump=1;

      if upcase(_rwlabel)='_NONE_' then
            _rwlabel=' ';
      _indent=8;
      _dptindt=4;

      if _trt=3 +1 then
            _trt=9999;

      if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
      _direct="TOP ";
      _p=2;
run;

/* Crit 23 */
data _anal23;
      length _EVENT23 8;
      set _data1;
      where same and _EVENT23 is not missing;
      _blcksrt=6;
      _cnt=1;
      _cat=1;

      if _trt <=0 then
            delete;
      output;
run;

proc sort data=_anal23;
      by _datasrt _blcksrt _EVENT23 _trt _cat;
run;

data _temp23;
      set _anal23;
      output;
run;
```

```
proc sort data=_temp23 out=_temp923 nodupkey;
      by _datasrt _blcksrt _cat _EVENT23 _trt usubjid;
      ;
run;

proc freq data=_temp923;
      format _EVENT23;
      tables _datasrt*_blcksrt*_cat * _EVENT23 * _trt / sparse norow nocol nopercent
            out=_pct23(drop=percent);
run;

proc sort data=_anal23 out=_denom23(keep=_datasrt _cat) nodupkey;
      ;
      by _datasrt _cat;
run;

data _denom23;
      set _denom23;
      by _datasrt _cat;
      label count='count';
      _trt=1;
      count=&_trt1.;
      output;
      _trt=2;
      count=&_trt2.;
      output;
      _trt=3;
      count=&_trt3.;
      output;
run;

data _denomf23;
      _datasrt=1;
      set _bydat1(keep=);
      * All treatment groups ;
      _trt1=0;
      _trt2=0;
      _trt3=0;
      * _CAT is the subgroup variable ;
      _cat=1;
      output;
run;

proc transpose data=_denom23 out=_denomin23(drop=_name_ _label_) prefix=_trt;
      by _datasrt _cat;
      var count;
      id _trt;
run;

data _frame23;
      _datasrt=1;
      set _bydat1(keep=);
      _blcksrt=6;
```

```
    length _EVENT23 8;
    _catLabl=" ";
    _trt=1;
    _EVENT23=1;
    _catord=1;
    _cat=1;
    output;
    _trt=2;
    _EVENT23=1;
    _catord=1;
    _cat=1;
    output;
    _trt=3;
    _EVENT23=1;
    _catord=1;
    _cat=1;
    output;
run;

proc sort data=_frame23;
    by _datasrt _blcksrt _cat _EVENT23 _trt;
run;

proc sort data=_pct23;
    by _datasrt _blcksrt _cat _EVENT23 _trt;
run;

data _pct23;
    merge _frame23(in=_inframe) _pct23;
    by _datasrt _blcksrt _cat _EVENT23 _trt;

    if _inframe;

    if count=. then
        count=0;
run;

proc sort data=_pct23;
    by _datasrt _blcksrt _EVENT23;
run;

data _miss23(keep=_datasrt _blcksrt _EVENT23 totcount);
    set _pct23;
    where _EVENT23=9998;
    retain totcount;
    by _datasrt _blcksrt _EVENT23;

    if first._EVENT23 then
        totcount=0;
    totcount=totcount+count;

    if last._EVENT23;
run;
```

```
data _pct23(drop=totcount);
	merge _pct23 _miss23;
	by _datasrt _blcksrt _EVENT23;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf23;
	by _datasrt _cat;
run;

proc sort data=_denomin23;
	by _datasrt _cat;
run;

data _denomin23;
	merge _denomf23(in=_inframe) _denomin23;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=6;
run;

proc sort data=_pct23;
	by _datasrt _cat;
run;

data _pct23;
	if 0 then
		set _basetemplate;
	merge _denomin23(in=_a) _pct23;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT23 ";
	_vrlabel=" ";
	_rwlabel="Originally randomized to placebo ";

	if _EVENT23=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT23=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;
```

```
proc sort data=_pct23;
	by _datasrt _blcksrt _catord _EVENT23 _trt _cat;
run;

data _base23;
	length _catlabl $200;
	set _pct23 end=eof;
	by _datasrt _blcksrt _catord _EVENT23 _trt _cat;
	retain _rowsrt 0 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
	else
		_cvalue=put(0, 5.);

	if _trt ne . then
		do;

			if _trtcnt(_trt) > 0 then
				do;
					percent=count / _trtcnt(_trt) * 100;

					if percent > 0 then
						do;

							if round(percent, 0.1) GE 0.1 then
								_cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
							else
								_cpct="(*ESC*){nbspace 1}(0.0)";
							_cvalue=trim(_cvalue)||_cpct;
						end;
				end;
		end;

/*	if length(_cvalue) < 13 then */
/*		do; */
/*			substr(_cvalue, 13, 1)='A0'x; */
/*		end; */

	if first._EVENT23 then
		do;
			_rowsrt=_rowsrt + 1;
			_rowmax=max(_rowsrt, _rowmax);
		end;
	_datatyp='data';
	_indent=0;
	_dptindt=0;
	_vorder=1;
	_rowjump=1;
```

```
    if upcase(_rwlabel)='_NONE_' then
        _rwlabel=' ';
    _indent=2;
    _dptindt=0;

    if _trt=3 +1 then
        _trt=9999;

    if eof then
        call symput('_rowsrt', compress(put(_rowmax, 4.)));
    _direct="TOP ";
    _p=2;
run;

/* Crit 24 */
data _anal24;
    length _EVENT24 8;
    set _data1;
    where same and _EVENT24 is not missing;
    _blcksrt=6;
    _cnt=1;
    _cat=1;

    if _trt <=0 then
        delete;
    output;
run;

proc sort data=_anal24;
    by _datasrt _blcksrt _EVENT24 _trt _cat;
run;

data _temp24;
    set _anal24;
    output;
run;

proc sort data=_temp24 out=_temp924 nodupkey;
    by _datasrt _blcksrt _cat _EVENT24 _trt usubjid;
    ;
run;

proc freq data=_temp924;
    format _EVENT24;
    tables _datasrt*_blcksrt*_cat * _EVENT24 * _trt / sparse norow nocol nopercent
        out=_pct24(drop=percent);
run;

proc sort data=_anal24 out=_denom24(keep=_datasrt _cat) nodupkey;
    ;
    by _datasrt _cat;
run;
```

```
data _denom24;
	set _denom24;
	by _datasrt _cat;
	label count='count';
	_trt=1;
	count=&_trt1.;
	output;
	_trt=2;
	count=&_trt2.;
	output;
	_trt=3;
	count=&_trt3.;
	output;
run;

data _denomf24;
	_datasrt=1;
	set _bydat1(keep=);
	* All treatment groups ;
	_trt1=0;
	_trt2=0;
	_trt3=0;
	* _CAT is the subgroup variable ;
	_cat=1;
	output;
run;

proc transpose data=_denom24 out=_denomin24(drop=_name_ _label_) prefix=_trt;
	by _datasrt _cat;
	var count;
	id _trt;
run;

data _frame24;
	_datasrt=1;
	set _bydat1(keep=);
	_blcksrt=6;
	length _EVENT24 8;
	_catLabl=" ";
	_trt=1;
	_EVENT24=1;
	_catord=1;
	_cat=1;
	output;
	_trt=2;
	_EVENT24=1;
	_catord=1;
	_cat=1;
	output;
	_trt=3;
	_EVENT24=1;
	_catord=1;
	_cat=1;
	output;
```

```
run;

proc sort data=_frame24;
	by _datasrt _blcksrt _cat _EVENT24 _trt;
run;

proc sort data=_pct24;
	by _datasrt _blcksrt _cat _EVENT24 _trt;
run;

data _pct24;
	merge _frame24(in=_inframe) _pct24;
	by _datasrt _blcksrt _cat _EVENT24 _trt;

	if _inframe;

	if count=. then
		count=0;
run;

proc sort data=_pct24;
	by _datasrt _blcksrt _EVENT24;
run;

data _miss24(keep=_datasrt _blcksrt _EVENT24 totcount);
	set _pct24;
	where _EVENT24=9998;
	retain totcount;
	by _datasrt _blcksrt _EVENT24;

	if first._EVENT24 then
		totcount=0;
	totcount=totcount+count;

	if last._EVENT24;
run;

data _pct24(drop=totcount);
	merge _pct24 _miss24;
	by _datasrt _blcksrt _EVENT24;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf24;
	by _datasrt _cat;
run;

proc sort data=_denomin24;
	by _datasrt _cat;
run;

data _denomin24;
```

```
	merge _denomf24(in=_inframe) _denomin24;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=6;
run;

proc sort data=_pct24;
	by _datasrt _cat;
run;

data _pct24;
	if 0 then
		set _basetemplate;
	merge _denomin24(in=_a) _pct24;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT24 ";
	_vrlabel=" ";
	_rwlabel="Withdrawn from the study after unblinding and before Dose 3 ";

	if _EVENT24=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT24=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct24;
	by _datasrt _blcksrt _catord _EVENT24 _trt _cat;
run;

data _base24;
	length _catlabl $200;
	set _pct24 end=eof;
	by _datasrt _blcksrt _catord _EVENT24 _trt _cat;
	retain _rowsrt 1 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
```

```
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*  if length(_cvalue) < 13 then */
/*      do; */
/*          substr(_cvalue, 13, 1)='A0'x; */
/*      end; */

    if first._EVENT24 then
        do;
            _rowsrt=_rowsrt + 1;
            _rowmax=max(_rowsrt, _rowmax);
        end;
    _datatyp='data';
    _indent=0;
    _dptindt=0;
    _vorder=1;
    _rowjump=1;

    if upcase(_rwlabel)='_NONE_' then
        _rwlabel=' ';
    _indent=4;
    _dptindt=0;

    if _trt=3 +1 then
        _trt=9999;

    if eof then
        call symput('_rowsrt', compress(put(_rowmax, 4.)));
    _direct="TOP ";
    _p=2;
run;

/* Crit 25 */
data _anal25;
```

```
        length _EVENT25 8;
        set _data1;
        where same and _EVENT25 is not missing;
        _blcksrt=6;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
              delete;
        output;
run;

proc sort data=_anal25;
        by _datasrt _blcksrt _EVENT25 _trt _cat;
run;

data _temp25;
        set _anal25;
        output;
run;

proc sort data=_temp25 out=_temp925 nodupkey;
        by _datasrt _blcksrt _cat _EVENT25 _trt usubjid;
        ;
run;

proc freq data=_temp925;
        format _EVENT25;
        tables _datasrt*_blcksrt*_cat * _EVENT25 * _trt / sparse norow nocol nopercent
              out=_pct25(drop=percent);
run;

proc sort data=_anal25 out=_denom25(keep=_datasrt _cat) nodupkey;
        ;
        by _datasrt _cat;
run;

data _denom25;
        set _denom25;
        by _datasrt _cat;
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf25;
        _datasrt=1;
```

```
    set _bydat1(keep=);
    * All treatment groups ;
    _trt1=0;
    _trt2=0;
    _trt3=0;
    * _CAT is the subgroup variable ;
    _cat=1;
    output;
run;

proc transpose data=_denom25 out=_denomin25(drop=_name_ _label_) prefix=_trt;
    by _datasrt _cat;
    var count;
    id _trt;
run;

data _frame25;
    _datasrt=1;
    set _bydat1(keep=);
    _blcksrt=6;
    length _EVENT25 8;
    _catLabl=" ";
    _trt=1;
    _EVENT25=1;
    _catord=1;
    _cat=1;
    output;
    _trt=2;
    _EVENT25=1;
    _catord=1;
    _cat=1;
    output;
    _trt=3;
    _EVENT25=1;
    _catord=1;
    _cat=1;
    output;
run;

proc sort data=_frame25;
    by _datasrt _blcksrt _cat _EVENT25 _trt;
run;

proc sort data=_pct25;
    by _datasrt _blcksrt _cat _EVENT25 _trt;
run;

data _pct25;
    merge _frame25(in=_inframe) _pct25;
    by _datasrt _blcksrt _cat _EVENT25 _trt;

    if _inframe;

    if count=. then
```

```
        count=0;
run;

proc sort data=_pct25;
    by _datasrt _blcksrt _EVENT25;
run;

data _miss25(keep=_datasrt _blcksrt _EVENT25 totcount);
    set _pct25;
    where _EVENT25=9998;
    retain totcount;
    by _datasrt _blcksrt _EVENT25;

    if first._EVENT25 then
        totcount=0;
    totcount=totcount+count;

    if last._EVENT25;
run;

data _pct25(drop=totcount);
    merge _pct25 _miss25;
    by _datasrt _blcksrt _EVENT25;

    if totcount=0 then
        delete;
run;

proc sort data=_denomf25;
    by _datasrt _cat;
run;

proc sort data=_denomin25;
    by _datasrt _cat;
run;

data _denomin25;
    merge _denomf25(in=_inframe) _denomin25;
    by _datasrt _cat;

    if _inframe;
    _blcksrt=6;
run;

proc sort data=_pct25;
    by _datasrt _cat;
run;

data _pct25;
    if 0 then
        set _basetemplate;
    merge _denomin25(in=_a) _pct25;
    by _datasrt _cat;
```

```
	if _a;
	_varname="_EVENT25 ";
	_vrlabel=" ";
	_rwlabel="Received Dose 3 (first dose of BNT162b2 [30 (*ESC*){unicode 03BC}g]) ";

	if _EVENT25=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT25=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct25;
	by _datasrt _blcksrt _catord _EVENT25 _trt _cat;
run;

data _base25;
	length _catlabl $200;
	set _pct25 end=eof;
	by _datasrt _blcksrt _catord _EVENT25 _trt _cat;
	retain _rowsrt 2 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
	else
		_cvalue=put(0, 5.);

	if _trt ne . then
		do;

			if _trtcnt(_trt) > 0 then
				do;
					percent=count / _trtcnt(_trt) * 100;

					if percent > 0 then
						do;

							if round(percent, 0.1) GE 0.1 then
								_cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
							else
								_cpct="(*ESC*){nbspace 1}(0.0)";
```

```
                                        _cvalue=trim(_cvalue)||_cpct;
                                end;
                        end;
                end;

/*      if length(_cvalue) < 13 then */
/*              do; */
/*                      substr(_cvalue, 13, 1)='A0'x; */
/*              end; */

        if first._EVENT25 then
                do;
                        _rowsrt=_rowsrt + 1;
                        _rowmax=max(_rowsrt, _rowmax);
                end;
        _datatyp='data';
        _indent=0;
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
                _rwlabel=' ';
        _indent=4;
        _dptindt=0;

        if _trt=3 +1 then
                _trt=9999;

        if eof then
                call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 26 */
data _anal26;
        length _EVENT26 8;
        set _data1;
        where same and _EVENT26 is not missing;
        _blcksrt=6;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
                delete;
        output;
run;

proc sort data=_anal26;
        by _datasrt _blcksrt _EVENT26 _trt _cat;
run;

data _temp26;
```

```
	set _anal26;
	output;
run;

proc sort data=_temp26 out=_temp926 nodupkey;
	by _datasrt _blcksrt _cat _EVENT26 _trt usubjid;
	;
run;

proc freq data=_temp926;
	format _EVENT26;
	tables _datasrt*_blcksrt*_cat * _EVENT26 * _trt / sparse norow nocol nopercent
		out=_pct26(drop=percent);
run;

proc sort data=_anal26 out=_denom26(keep=_datasrt _cat) nodupkey;
	;
	by _datasrt _cat;
run;

data _denom26;
	set _denom26;
	by _datasrt _cat;
	label count='count';
	_trt=1;
	count=&_trt1.;
	output;
	_trt=2;
	count=&_trt2.;
	output;
	_trt=3;
	count=&_trt3.;
	output;
run;

data _denomf26;
	_datasrt=1;
	set _bydat1(keep=);
	* All treatment groups ;
	_trt1=0;
	_trt2=0;
	_trt3=0;
	* _CAT is the subgroup variable ;
	_cat=1;
	output;
run;

proc transpose data=_denom26 out=_denomin26(drop=_name_ _label_) prefix=_trt;
	by _datasrt _cat;
	var count;
	id _trt;
run;

data _frame26;
```

```
        _datasrt=1;
        set _bydat1(keep=);
        _blcksrt=6;
        length _EVENT26 8;
        _catLabl=" ";
        _trt=1;
        _EVENT26=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT26=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT26=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame26;
        by _datasrt _blcksrt _cat _EVENT26 _trt;
run;

proc sort data=_pct26;
        by _datasrt _blcksrt _cat _EVENT26 _trt;
run;

data _pct26;
        merge _frame26(in=_inframe) _pct26;
        by _datasrt _blcksrt _cat _EVENT26 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct26;
        by _datasrt _blcksrt _EVENT26;
run;

data _miss26(keep=_datasrt _blcksrt _EVENT26 totcount);
        set _pct26;
        where _EVENT26=9998;
        retain totcount;
        by _datasrt _blcksrt _EVENT26;

        if first._EVENT26 then
                totcount=0;
        totcount=totcount+count;
```

```
    if last._EVENT26;
run;

data _pct26(drop=totcount);
    merge _pct26 _miss26;
    by _datasrt _blcksrt _EVENT26;

    if totcount=0 then
        delete;
run;

proc sort data=_denomf26;
    by _datasrt _cat;
run;

proc sort data=_denomin26;
    by _datasrt _cat;
run;

data _denomin26;
    merge _denomf26(in=_inframe) _denomin26;
    by _datasrt _cat;

    if _inframe;
    _blcksrt=6;
run;

proc sort data=_pct26;
    by _datasrt _cat;
run;

data _pct26;
    if 0 then
        set _basetemplate;
    merge _denomin26(in=_a) _pct26;
    by _datasrt _cat;

    if _a;
    _varname="_EVENT26 ";
    _vrlabel=" ";
    _rwlabel="Received Dose 4 (second dose of BNT162b2 [30 (*ESC*){unicode 03BC}g]) ";

    if _EVENT26=9998 then
        do;
            _rwlabel="Missing ";
            _catord=9998;
        end;
    else if _EVENT26=9999 then
        do;
            _rwlabel="Total ";
            _catord=9999;
        end;

    if _catord=. then
```

```
        _catord=9997;
run;

proc sort data=_pct26;
    by _datasrt _blcksrt _catord _EVENT26 _trt _cat;
run;

data _base26;
    length _catlabl $200;
    set _pct26 end=eof;
    by _datasrt _blcksrt _catord _EVENT26 _trt _cat;
    retain _rowsrt 3 _rowmax 0;
    array _trtcnt(*) _trt1-_trt4;
    drop _rowmax _cpct;
    length _cpct $100;
    _cpct=' ';
    _module='mcatstat';

    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*  if length(_cvalue) < 13 then */
/*      do; */
/*          substr(_cvalue, 13, 1)='A0'x; */
/*      end; */

    if first._EVENT26 then
        do;
            _rowsrt=_rowsrt + 1;
            _rowmax=max(_rowsrt, _rowmax);
        end;
    _datatyp='data';
    _indent=0;
```

```
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
                _rwlabel=' ';
        _indent=4;
        _dptindt=0;

        if _trt=3 +1 then
                _trt=9999;

        if eof then
                call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 27 */
data _anal27;
        length _EVENT27 8;
        set _data1;
        where same and _EVENT27 is not missing;
        _blcksrt=7;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
                delete;
        output;
run;

proc sort data=_anal27;
        by _datasrt _blcksrt _EVENT27 _trt _cat;
run;

data _temp27;
        set _anal27;
        output;
run;

proc sort data=_temp27 out=_temp927 nodupkey;
        by _datasrt _blcksrt _cat _EVENT27 _trt usubjid;
        ;
run;

proc freq data=_temp927;
        format _EVENT27;
        tables _datasrt*_blcksrt*_cat * _EVENT27 * _trt / sparse norow nocol nopercent
                out=_pct27(drop=percent);
run;

proc sort data=_anal27 out=_denom27(keep=_datasrt _cat) nodupkey;
        ;
```

```
    by _datasrt _cat;
run;

data _denom27;
    set _denom27;
    by _datasrt _cat;
    label count='count';
    _trt=1;
    count=&_trt1.;
    output;
    _trt=2;
    count=&_trt2.;
    output;
    _trt=3;
    count=&_trt3.;
    output;
run;

data _denomf27;
    _datasrt=1;
    set _bydat1(keep=);
    * All treatment groups ;
    _trt1=0;
    _trt2=0;
    _trt3=0;
    * _CAT is the subgroup variable ;
    _cat=1;
    output;
run;

proc transpose data=_denom27 out=_denomin27(drop=_name_ _label_) prefix=_trt;
    by _datasrt _cat;
    var count;
    id _trt;
run;

data _frame27;
    _datasrt=1;
    set _bydat1(keep=);
    _blcksrt=7;
    length _EVENT27 8;
    _catLabl=" ";
    _trt=1;
    _EVENT27=1;
    _catord=1;
    _cat=1;
    output;
    _trt=2;
    _EVENT27=1;
    _catord=1;
    _cat=1;
    output;
    _trt=3;
    _EVENT27=1;
```

```
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame27;
        by _datasrt _blcksrt _cat _EVENT27 _trt;
run;

proc sort data=_pct27;
        by _datasrt _blcksrt _cat _EVENT27 _trt;
run;

data _pct27;
        merge _frame27(in=_inframe) _pct27;
        by _datasrt _blcksrt _cat _EVENT27 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct27;
        by _datasrt _blcksrt _EVENT27;
run;

data _miss27(keep=_datasrt _blcksrt _EVENT27 totcount);
        set _pct27;
        where _EVENT27=9998;
        retain totcount;
        by _datasrt _blcksrt _EVENT27;

        if first._EVENT27 then
                totcount=0;
        totcount=totcount+count;

        if last._EVENT27;
run;

data _pct27(drop=totcount);
        merge _pct27 _miss27;
        by _datasrt _blcksrt _EVENT27;

        if totcount=0 then
                delete;
run;

proc sort data=_denomf27;
        by _datasrt _cat;
run;

proc sort data=_denomin27;
        by _datasrt _cat;
```

```
run;

data _denomin27;
	merge _denomf27(in=_inframe) _denomin27;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=7;
run;

proc sort data=_pct27;
	by _datasrt _cat;
run;

data _pct27;
	if 0 then
		set _basetemplate;
	merge _denomin27(in=_a) _pct27;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT27 ";
	_vrlabel=" ";
	_rwlabel="Discontinued from open-label vaccination period~{super d} ";

	if _EVENT27=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT27=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct27;
	by _datasrt _blcksrt _catord _EVENT27 _trt _cat;
run;

data _base27;
	length _catlabl $200;
	set _pct27 end=eof;
	by _datasrt _blcksrt _catord _EVENT27 _trt _cat;
	retain _rowsrt 0 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';
```

```
    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
        end;

/*  if length(_cvalue) < 13 then */
/*      do; */
/*          substr(_cvalue, 13, 1)='A0'x; */
/*      end; */

    if first._EVENT27 then
        do;
            _rowsrt=_rowsrt + 1;
            _rowmax=max(_rowsrt, _rowmax);
        end;
    _datatyp='data';
    _indent=0;
    _dptindt=0;
    _vorder=1;
    _rowjump=1;

    if upcase(_rwlabel)='_NONE_' then
        _rwlabel=' ';
    _indent=4;
    _dptindt=0;

    if _trt=3 +1 then
        _trt=9999;

    if eof then
        call symput('_rowsrt', compress(put(_rowmax, 4.)));
    _direct="TOP ";
    _p=2;
run;
```

```
/* Crit 28 */
data _anal28;
	length DSDECODN 8;
	set _data1;
	where same and DSDECODN is not missing;
	_blcksrt=7;
	_cnt=1;
	_cat=1;

	if _trt <=0 then
		delete;
	output;
run;

proc sort data=_anal28;
	by _datasrt _blcksrt DSDECODN _trt _cat;
run;

data _temp28;
	set _anal28;
	output;
run;

proc sort data=_temp28 out=_temp928 nodupkey;
	by _datasrt _blcksrt _cat DSDECODN _trt usubjid;
	where RANDFL eq 'Y' and DSPHASEN=7 and EOTXDCDT ne . and dsdecodn not in (. 2)
		and vax201dt ne . and index(armcd, 'PLACEBO');
run;

proc freq data=_temp928;
	format DSDECODN;
	tables _datasrt*_blcksrt*_cat * DSDECODN * _trt / sparse norow nocol nopercent
		out=_pct28(drop=percent);
run;

proc sort data=_anal28 out=_denom28(keep=_datasrt _cat) nodupkey;
	where RANDFL eq 'Y' and DSPHASEN=7 and EOTXDCDT ne . and dsdecodn not in (. 2)
		and vax201dt ne . and index(armcd, 'PLACEBO');
	by _datasrt _cat;
run;

data _denom28;
	set _denom28;
	by _datasrt _cat;
	label count='count';
	_trt=1;
	count=&_trt1.;
	output;
	_trt=2;
	count=&_trt2.;
	output;
	_trt=3;
	count=&_trt3.;
```

```
        output;
run;

data _denomf28;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom28 out=_denomin28(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

proc sort data=_pct28 out=_expv28 (keep=_datasrt _blcksrt DSDECODN) nodupkey;
        by _datasrt _blcksrt DSDECODN;
run;

proc sort data=_expv28;
        by _datasrt _blcksrt DSDECODN;
run;

data _frame28;
        set _expv28;
        by _datasrt _blcksrt DSDECODN;

        if first._blcksrt then
                _catord=0;
        _catord + 1;
        _trt=1;
        _cat=1;
        output;
        _trt=2;
        _cat=1;
        output;
        _trt=3;
        _cat=1;
        output;
run;

proc sort data=_frame28;
        by _datasrt _blcksrt _cat DSDECODN _trt;
run;

proc sort data=_pct28;
        by _datasrt _blcksrt _cat DSDECODN _trt;
run;
```

```
data _pct28;
	merge _frame28(in=_inframe) _pct28;
	by _datasrt _blcksrt _cat DSDECODN _trt;

	if _inframe;

	if count=. then
		count=0;
run;

proc sort data=_pct28;
	by _datasrt _blcksrt DSDECODN;
run;

data _miss28(keep=_datasrt _blcksrt DSDECODN totcount);
	set _pct28;
	where DSDECODN=9998;
	retain totcount;
	by _datasrt _blcksrt DSDECODN;

	if first.DSDECODN then
		totcount=0;
	totcount=totcount+count;

	if last.DSDECODN;
run;

data _pct28(drop=totcount);
	merge _pct28 _miss28;
	by _datasrt _blcksrt DSDECODN;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf28;
	by _datasrt _cat;
run;

proc sort data=_denomin28;
	by _datasrt _cat;
run;

data _denomin28;
	merge _denomf28(in=_inframe) _denomin28;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=7;
run;

proc sort data=_pct28;
	by _datasrt _cat;
```

```
run;

data _pct28;
	if 0 then
		set _basetemplate;
	merge _denomin28(in=_a) _pct28;
	by _datasrt _cat;

	if _a;
	_varname="DSDECODN ";
	_vrlabel="Reason for discontinuation from open-label vaccination period ";
	_rwlabel=put(DSDECODN, dsdecod.);

	if DSDECODN=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if DSDECODN=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct28;
	by _datasrt _blcksrt _catord DSDECODN _trt _cat;
run;

data _base28;
	length _catlabl $200;
	set _pct28 end=eof;
	by _datasrt _blcksrt _catord DSDECODN _trt _cat;
	retain _rowsrt 1 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
	else
		_cvalue=put(0, 5.);

	if _trt ne . then
		do;

			if _trtcnt(_trt) > 0 then
				do;
					percent=count / _trtcnt(_trt) * 100;
```

```
                        if percent > 0 then
                            do;

                                if round(percent, 0.1) GE 0.1 then
                                    _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                                else
                                    _cpct="(*ESC*){nbspace 1}(0.0)";
                                _cvalue=trim(_cvalue)||_cpct;
                            end;
                    end;
            end;

/*      if length(_cvalue) < 13 then */
/*          do; */
                *------------------------------------------------------------------------;
                * Put character A0x at right most character to pad text;
                *------------------------------------------------------------------------;
/*              substr(_cvalue, 13, 1)='A0'x; */
/*          end; */

        if first.DSDECODN then
            do;
                _rowsrt=_rowsrt + 1;
                _rowmax=max(_rowsrt, _rowmax);
            end;
        _datatyp='data';
        _indent=0;
        _dptindt=0;
        _vorder=1;
        _rowjump=1;

        if upcase(_rwlabel)='_NONE_' then
            _rwlabel=' ';
        _indent=8;
        _dptindt=4;

        if _trt=3 +1 then
            _trt=9999;

        if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 29 */
data _anal29;
        length _EVENT29 8;
        set _data1;
        where same and _EVENT29 is not missing;
        _blcksrt=8;
        _cnt=1;
        _cat=1;
```

```
        if _trt <=0 then
            delete;
        output;
run;

proc sort data=_anal29;
        by _datasrt _blcksrt _EVENT29 _trt _cat;
run;

data _temp29;
        set _anal29;
        output;
run;

proc sort data=_temp29 out=_temp929 nodupkey;
        by _datasrt _blcksrt _cat _EVENT29 _trt usubjid;
        ;
run;

proc freq data=_temp929;
        format _EVENT29;
        tables _datasrt*_blcksrt*_cat * _EVENT29 * _trt / sparse norow nocol nopercent
            out=_pct29(drop=percent);
run;

proc sort data=_anal29 out=_denom29(keep=_datasrt _cat) nodupkey;
        ;
        by _datasrt _cat;
run;

data _denom29;
        set _denom29;
        by _datasrt _cat;
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf29;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
```

```
        _cat=1;
        output;
run;

proc transpose data=_denom29 out=_denomin29(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

data _frame29;
        _datasrt=1;
        set _bydat1(keep=);
        _blcksrt=8;
        length _EVENT29 8;
        _catLabl=" ";
        _trt=1;
        _EVENT29=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT29=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT29=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame29;
        by _datasrt _blcksrt _cat _EVENT29 _trt;
run;

proc sort data=_pct29;
        by _datasrt _blcksrt _cat _EVENT29 _trt;
run;

data _pct29;
        merge _frame29(in=_inframe) _pct29;
        by _datasrt _blcksrt _cat _EVENT29 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct29;
        by _datasrt _blcksrt _EVENT29;
run;
```

```
data _miss29(keep=_datasrt _blcksrt _EVENT29 totcount);
	set _pct29;
	where _EVENT29=9998;
	retain totcount;
	by _datasrt _blcksrt _EVENT29;

	if first._EVENT29 then
		totcount=0;
	totcount=totcount+count;

	if last._EVENT29;
run;

data _pct29(drop=totcount);
	merge _pct29 _miss29;
	by _datasrt _blcksrt _EVENT29;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf29;
	by _datasrt _cat;
run;

proc sort data=_denomin29;
	by _datasrt _cat;
run;

data _denomin29;
	merge _denomf29(in=_inframe) _denomin29;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=8;
run;

proc sort data=_pct29;
	by _datasrt _cat;
run;

data _pct29;
	if 0 then
		set _basetemplate;
	merge _denomin29(in=_a) _pct29;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT29 ";
	_vrlabel=" ";
	_rwlabel="Completed 1-month post(*ESC*){unicode 2013}Dose 4 visit ";

	if _EVENT29=9998 then
```

```
            do;
                _rwlabel="Missing ";
                _catord=9998;
            end;
        else if _EVENT29=9999 then
            do;
                _rwlabel="Total ";
                _catord=9999;
            end;

        if _catord=. then
            _catord=9997;
run;

proc sort data=_pct29;
        by _datasrt _blcksrt _catord _EVENT29 _trt _cat;
run;

data _base29;
        length _catlabl $200;
        set _pct29 end=eof;
        by _datasrt _blcksrt _catord _EVENT29 _trt _cat;
        retain _rowsrt 0 _rowmax 0;
        array _trtcnt(*) _trt1-_trt4;
        drop _rowmax _cpct;
        length _cpct $100;
        _cpct=' ';
        _module='mcatstat';

        if count > . then
            _cvalue=put(count, 5.);
        else
            _cvalue=put(0, 5.);

        if _trt ne . then
            do;

                if _trtcnt(_trt) > 0 then
                    do;
                        percent=count / _trtcnt(_trt) * 100;

                        if percent > 0 then
                            do;

                                if round(percent, 0.1) GE 0.1 then
                                    _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                                else
                                    _cpct="(*ESC*){nbspace 1}(0.0)";
                                _cvalue=trim(_cvalue)||_cpct;
                            end;
                    end;
            end;

/*      if length(_cvalue) < 13 then */
```

```
/*            do; */
/*                 substr(_cvalue, 13, 1)='A0'x; */
/*            end; */

      if first._EVENT29 then
            do;
                  _rowsrt=_rowsrt + 1;
                  _rowmax=max(_rowsrt, _rowmax);
            end;
      _datatyp='data';
      _indent=0;
      _dptindt=0;
      _vorder=1;
      _rowjump=1;

      if upcase(_rwlabel)='_NONE_' then
            _rwlabel=' ';
      _indent=4;
      _dptindt=0;

      if _trt=3 +1 then
            _trt=9999;

      if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
      _direct="TOP ";
      _p=2;
run;

/* Crit 30 */
data _anal30;
      length _EVENT30 8;
      set _data1;
      where same and _EVENT30 is not missing;
      _blcksrt=9;
      _cnt=1;
      _cat=1;

      if _trt <=0 then
            delete;
      output;
run;

proc sort data=_anal30;
      by _datasrt _blcksrt _EVENT30 _trt _cat;
run;

data _temp30;
      set _anal30;
      output;
run;

proc sort data=_temp30 out=_temp930 nodupkey;
      by _datasrt _blcksrt _cat _EVENT30 _trt usubjid;
```

```
        ;
run;

proc freq data=_temp930;
        format _EVENT30;
        tables _datasrt*_blcksrt*_cat * _EVENT30 * _trt / sparse norow nocol nopercent
                out=_pct30(drop=percent);
run;

proc sort data=_anal30 out=_denom30(keep=_datasrt _cat) nodupkey;
        ;
        by _datasrt _cat;
run;

data _denom30;
        set _denom30;
        by _datasrt _cat;
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf30;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom30 out=_denomin30(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

data _frame30;
        _datasrt=1;
        set _bydat1(keep=);
        _blcksrt=9;
        length _EVENT30 8;
        _catLabl=" ";
        _trt=1;
```

```
        _EVENT30=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT30=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT30=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame30;
        by _datasrt _blcksrt _cat _EVENT30 _trt;
run;

proc sort data=_pct30;
        by _datasrt _blcksrt _cat _EVENT30 _trt;
run;

data _pct30;
        merge _frame30(in=_inframe) _pct30;
        by _datasrt _blcksrt _cat _EVENT30 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct30;
        by _datasrt _blcksrt _EVENT30;
run;

data _miss30(keep=_datasrt _blcksrt _EVENT30 totcount);
        set _pct30;
        where _EVENT30=9998;
        retain totcount;
        by _datasrt _blcksrt _EVENT30;

        if first._EVENT30 then
                totcount=0;
        totcount=totcount+count;

        if last._EVENT30;
run;

data _pct30(drop=totcount);
        merge _pct30 _miss30;
        by _datasrt _blcksrt _EVENT30;
```

```
    if totcount=0 then
        delete;
run;

proc sort data=_denomf30;
    by _datasrt _cat;
run;

proc sort data=_denomin30;
    by _datasrt _cat;
run;

data _denomin30;
    merge _denomf30(in=_inframe) _denomin30;
    by _datasrt _cat;

    if _inframe;
    _blcksrt=9;
run;

proc sort data=_pct30;
    by _datasrt _cat;
run;

data _pct30;
    if 0 then
        set _basetemplate;
    merge _denomin30(in=_a) _pct30;
    by _datasrt _cat;

    if _a;
    _varname="_EVENT30 ";
    _vrlabel=" ";
    _rwlabel="Withdrawn from the study ";

    if _EVENT30=9998 then
        do;
            _rwlabel="Missing ";
            _catord=9998;
        end;
    else if _EVENT30=9999 then
        do;
            _rwlabel="Total ";
            _catord=9999;
        end;

    if _catord=. then
        _catord=9997;
run;

proc sort data=_pct30;
    by _datasrt _blcksrt _catord _EVENT30 _trt _cat;
run;
```

```
data _base30;
	length _catlabl $200;
	set _pct30 end=eof;
	by _datasrt _blcksrt _catord _EVENT30 _trt _cat;
	retain _rowsrt 0 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
	else
		_cvalue=put(0, 5.);

	if _trt ne . then
		do;

			if _trtcnt(_trt) > 0 then
				do;
					percent=count / _trtcnt(_trt) * 100;

					if percent > 0 then
						do;

							if round(percent, 0.1) GE 0.1 then
								_cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
							else
								_cpct="(*ESC*){nbspace 1}(0.0)";
							_cvalue=trim(_cvalue)||_cpct;
						end;
				end;
		end;

/*	 if length(_cvalue) < 13 then */
/*		do; */
/*			substr(_cvalue, 13, 1)='A0'x; */
/*		end; */

	if first._EVENT30 then
		do;
			_rowsrt=_rowsrt + 1;
			_rowmax=max(_rowsrt, _rowmax);
		end;
	_datatyp='data';
	_indent=0;
	_dptindt=0;
	_vorder=1;
	_rowjump=1;

	if upcase(_rwlabel)='_NONE_' then
		_rwlabel=' ';
```

```
        _indent=4;
        _dptindt=0;

        if _trt=3 +1 then
              _trt=9999;

        if eof then
              call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Crit 31 */
data _anal31;
        length _EVENT31 8;
        set _data1;
        where same and _EVENT31 is not missing;
        _blcksrt=9;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
              delete;
        output;
run;

proc sort data=_anal31;
        by _datasrt _blcksrt _EVENT31 _trt _cat;
run;

data _temp31;
        set _anal31;
        output;
run;

proc sort data=_temp31 out=_temp931 nodupkey;
        by _datasrt _blcksrt _cat _EVENT31 _trt usubjid;
        ;
run;

proc freq data=_temp931;
        format _EVENT31;
        tables _datasrt*_blcksrt*_cat * _EVENT31 * _trt / sparse norow nocol nopercent
              out=_pct31(drop=percent);
run;

proc sort data=_anal31 out=_denom31(keep=_datasrt _cat) nodupkey;
        ;
        by _datasrt _cat;
run;

data _denom31;
        set _denom31;
        by _datasrt _cat;
```

```
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf31;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom31 out=_denomin31(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

data _frame31;
        _datasrt=1;
        set _bydat1(keep=);
        _blcksrt=9;
        length _EVENT31 8;
        _catLabl=" ";
        _trt=1;
        _EVENT31=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT31=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT31=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame31;
```

```
    by _datasrt _blcksrt _cat _EVENT31 _trt;
run;

proc sort data=_pct31;
    by _datasrt _blcksrt _cat _EVENT31 _trt;
run;

data _pct31;
    merge _frame31(in=_inframe) _pct31;
    by _datasrt _blcksrt _cat _EVENT31 _trt;

    if _inframe;

    if count=. then
        count=0;
run;

proc sort data=_pct31;
    by _datasrt _blcksrt _EVENT31;
run;

data _miss31(keep=_datasrt _blcksrt _EVENT31 totcount);
    set _pct31;
    where _EVENT31=9998;
    retain totcount;
    by _datasrt _blcksrt _EVENT31;

    if first._EVENT31 then
        totcount=0;
    totcount=totcount+count;

    if last._EVENT31;
run;

data _pct31(drop=totcount);
    merge _pct31 _miss31;
    by _datasrt _blcksrt _EVENT31;

    if totcount=0 then
        delete;
run;

proc sort data=_denomf31;
    by _datasrt _cat;
run;

proc sort data=_denomin31;
    by _datasrt _cat;
run;

data _denomin31;
    merge _denomf31(in=_inframe) _denomin31;
    by _datasrt _cat;
```

```
        if _inframe;
        _blcksrt=9;
run;

proc sort data=_pct31;
        by _datasrt _cat;
run;

data _pct31;
        if 0 then
                set _basetemplate;
        merge _denomin31(in=_a) _pct31;
        by _datasrt _cat;

        if _a;
        _varname="_EVENT31 ";
        _vrlabel=" ";
        _rwlabel="Withdrawn after Dose 3 and before Dose 4 ";

        if _EVENT31=9998 then
                do;
                        _rwlabel="Missing ";
                        _catord=9998;
                end;
        else if _EVENT31=9999 then
                do;
                        _rwlabel="Total ";
                        _catord=9999;
                end;

        if _catord=. then
                _catord=9997;
run;

proc sort data=_pct31;
        by _datasrt _blcksrt _catord _EVENT31 _trt _cat;
run;

data _base31;
        length _catlabl $200;
        set _pct31 end=eof;
        by _datasrt _blcksrt _catord _EVENT31 _trt _cat;
        retain _rowsrt 1 _rowmax 0;
        array _trtcnt(*) _trt1-_trt4;
        drop _rowmax _cpct;
        length _cpct $100;
        _cpct=' ';
        _module='mcatstat';

        if count > . then
                _cvalue=put(count, 5.);
        else
                _cvalue=put(0, 5.);
```

```
      if _trt ne . then
            do;

                  if _trtcnt(_trt) > 0 then
                        do;
                              percent=count / _trtcnt(_trt) * 100;

                              if percent > 0 then
                                    do;

                                          if round(percent, 0.1) GE 0.1 then
                                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                                          else
                                                _cpct="(*ESC*){nbspace 1}(0.0)";
                                          _cvalue=trim(_cvalue)||_cpct;
                                    end;
                        end;
            end;

/*      if length(_cvalue) < 13 then */
/*            do; */
/*                  substr(_cvalue, 13, 1)='A0'x; */
/*            end; */

      if first._EVENT31 then
            do;
                  _rowsrt=_rowsrt + 1;
                  _rowmax=max(_rowsrt, _rowmax);
            end;
      _datatyp='data';
      _indent=0;
      _dptindt=0;
      _vorder=1;
      _rowjump=1;

      if upcase(_rwlabel)='_NONE_' then
            _rwlabel=' ';
      _indent=6;
      _dptindt=0;

      if _trt=3 +1 then
            _trt=9999;

      if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
      _direct="TOP ";
      _p=2;
run;

/* Crit 32 */
data _anal32;
      length _EVENT32 8;
      set _data1;
      where same and _EVENT32 is not missing;
```

```
        _blcksrt=9;
        _cnt=1;
        _cat=1;

        if _trt <=0 then
              delete;
        output;
run;

proc sort data=_anal32;
        by _datasrt _blcksrt _EVENT32 _trt _cat;
run;

data _temp32;
        set _anal32;
        output;
run;

proc sort data=_temp32 out=_temp932 nodupkey;
        by _datasrt _blcksrt _cat _EVENT32 _trt usubjid;
        ;
run;

proc freq data=_temp932;
        format _EVENT32;
        tables _datasrt*_blcksrt*_cat * _EVENT32 * _trt / sparse norow nocol nopercent
              out=_pct32(drop=percent);
run;

proc sort data=_anal32 out=_denom32(keep=_datasrt _cat) nodupkey;
        ;
        by _datasrt _cat;
run;

data _denom32;
        set _denom32;
        by _datasrt _cat;
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf32;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
```

```
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom32 out=_denomin32(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

data _frame32;
        _datasrt=1;
        set _bydat1(keep=);
        _blcksrt=9;
        length _EVENT32 8;
        _catLabl=" ";
        _trt=1;
        _EVENT32=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT32=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT32=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame32;
        by _datasrt _blcksrt _cat _EVENT32 _trt;
run;

proc sort data=_pct32;
        by _datasrt _blcksrt _cat _EVENT32 _trt;
run;

data _pct32;
        merge _frame32(in=_inframe) _pct32;
        by _datasrt _blcksrt _cat _EVENT32 _trt;

        if _inframe;

        if count=. then
                count=0;
run;
```

```
proc sort data=_pct32;
	by _datasrt _blcksrt _EVENT32;
run;

data _miss32(keep=_datasrt _blcksrt _EVENT32 totcount);
	set _pct32;
	where _EVENT32=9998;
	retain totcount;
	by _datasrt _blcksrt _EVENT32;

	if first._EVENT32 then
		totcount=0;
	totcount=totcount+count;

	if last._EVENT32;
run;

data _pct32(drop=totcount);
	merge _pct32 _miss32;
	by _datasrt _blcksrt _EVENT32;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf32;
	by _datasrt _cat;
run;

proc sort data=_denomin32;
	by _datasrt _cat;
run;

data _denomin32;
	merge _denomf32(in=_inframe) _denomin32;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=9;
run;

proc sort data=_pct32;
	by _datasrt _cat;
run;

data _pct32;
	if 0 then
		set _basetemplate;
	merge _denomin32(in=_a) _pct32;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT32 ";
	_vrlabel=" ";
```

```
    _rwlabel="Withdrawn after Dose 4 and before 1-month post(*ESC*){unicode 2013}Dose 4 visit ";

    if _EVENT32=9998 then
        do;
            _rwlabel="Missing ";
            _catord=9998;
        end;
    else if _EVENT32=9999 then
        do;
            _rwlabel="Total ";
            _catord=9999;
        end;

    if _catord=. then
        _catord=9997;
run;

proc sort data=_pct32;
    by _datasrt _blcksrt _catord _EVENT32 _trt _cat;
run;

data _base32;
    length _catlabl $200;
    set _pct32 end=eof;
    by _datasrt _blcksrt _catord _EVENT32 _trt _cat;
    retain _rowsrt 2 _rowmax 0;
    array _trtcnt(*) _trt1-_trt4;
    drop _rowmax _cpct;
    length _cpct $100;
    _cpct=' ';
    _module='mcatstat';

    if count > . then
        _cvalue=put(count, 5.);
    else
        _cvalue=put(0, 5.);

    if _trt ne . then
        do;

            if _trtcnt(_trt) > 0 then
                do;
                    percent=count / _trtcnt(_trt) * 100;

                    if percent > 0 then
                        do;

                            if round(percent, 0.1) GE 0.1 then
                                _cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
                            else
                                _cpct="(*ESC*){nbspace 1}(0.0)";
                            _cvalue=trim(_cvalue)||_cpct;
                        end;
                end;
```

```
        end;

/*    if length(_cvalue) < 13 then */
/*        do; */
/*            substr(_cvalue, 13, 1)='A0'x; */
/*        end; */

      if first._EVENT32 then
        do;
          _rowsrt=_rowsrt + 1;
          _rowmax=max(_rowsrt, _rowmax);
        end;
      _datatyp='data';
      _indent=0;
      _dptindt=0;
      _vorder=1;
      _rowjump=1;

      if upcase(_rwlabel)='_NONE_' then
        _rwlabel=' ';
      _indent=6;
      _dptindt=0;

      if _trt=3 +1 then
        _trt=9999;

      if eof then
        call symput('_rowsrt', compress(put(_rowmax, 4.)));
      _direct="TOP ";
      _p=2;
run;

/* Crit 33 */
data _anal33;
      length _EVENT33 8;
      set _data1;
      where same and _EVENT33 is not missing;
      _blcksrt=9;
      _cnt=1;
      _cat=1;

      if _trt <=0 then
        delete;
      output;
run;

proc sort data=_anal33;
      by _datasrt _blcksrt _EVENT33 _trt _cat;
run;

data _temp33;
      set _anal33;
      output;
run;
```

```
proc sort data=_temp33 out=_temp933 nodupkey;
      by _datasrt _blcksrt _cat _EVENT33 _trt usubjid;
      ;
run;

proc freq data=_temp933;
      format _EVENT33;
      tables _datasrt*_blcksrt*_cat * _EVENT33 * _trt / sparse norow nocol nopercent
            out=_pct33(drop=percent);
run;

proc sort data=_anal33 out=_denom33(keep=_datasrt _cat) nodupkey;
      ;
      by _datasrt _cat;
run;

data _denom33;
      set _denom33;
      by _datasrt _cat;
      label count='count';
      _trt=1;
      count=&_trt1.;
      output;
      _trt=2;
      count=&_trt2.;
      output;
      _trt=3;
      count=&_trt3.;
      output;
run;

data _denomf33;
      _datasrt=1;
      set _bydat1(keep=);
      * All treatment groups ;
      _trt1=0;
      _trt2=0;
      _trt3=0;
      * _CAT is the subgroup variable ;
      _cat=1;
      output;
run;

proc transpose data=_denom33 out=_denomin33(drop=_name_ _label_) prefix=_trt;
      by _datasrt _cat;
      var count;
      id _trt;
run;

data _frame33;
      _datasrt=1;
      set _bydat1(keep=);
      _blcksrt=9;
```

```
        length _EVENT33 8;
        _catLabl=" ";
        _trt=1;
        _EVENT33=1;
        _catord=1;
        _cat=1;
        output;
        _trt=2;
        _EVENT33=1;
        _catord=1;
        _cat=1;
        output;
        _trt=3;
        _EVENT33=1;
        _catord=1;
        _cat=1;
        output;
run;

proc sort data=_frame33;
        by _datasrt _blcksrt _cat _EVENT33 _trt;
run;

proc sort data=_pct33;
        by _datasrt _blcksrt _cat _EVENT33 _trt;
run;

data _pct33;
        merge _frame33(in=_inframe) _pct33;
        by _datasrt _blcksrt _cat _EVENT33 _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct33;
        by _datasrt _blcksrt _EVENT33;
run;

data _miss33(keep=_datasrt _blcksrt _EVENT33 totcount);
        set _pct33;
        where _EVENT33=9998;
        retain totcount;
        by _datasrt _blcksrt _EVENT33;

        if first._EVENT33 then
                totcount=0;
        totcount=totcount+count;

        if last._EVENT33;
run;
```

```
data _pct33(drop=totcount);
	merge _pct33 _miss33;
	by _datasrt _blcksrt _EVENT33;

	if totcount=0 then
		delete;
run;

proc sort data=_denomf33;
	by _datasrt _cat;
run;

proc sort data=_denomin33;
	by _datasrt _cat;
run;

data _denomin33;
	merge _denomf33(in=_inframe) _denomin33;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=9;
run;

proc sort data=_pct33;
	by _datasrt _cat;
run;

data _pct33;
	if 0 then
		set _basetemplate;
	merge _denomin33(in=_a) _pct33;
	by _datasrt _cat;

	if _a;
	_varname="_EVENT33 ";
	_vrlabel=" ";
	_rwlabel="Withdrawn after 1-month post(*ESC*){unicode 2013}Dose 4 visit ";

	if _EVENT33=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if _EVENT33=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;
```

```
proc sort data=_pct33;
	by _datasrt _blcksrt _catord _EVENT33 _trt _cat;
run;

data _base33;
	length _catlabl $200;
	set _pct33 end=eof;
	by _datasrt _blcksrt _catord _EVENT33 _trt _cat;
	retain _rowsrt 3 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
	drop _rowmax _cpct;
	length _cpct $100;
	_cpct=' ';
	_module='mcatstat';

	if count > . then
		_cvalue=put(count, 5.);
	else
		_cvalue=put(0, 5.);

	if _trt ne . then
		do;

			if _trtcnt(_trt) > 0 then
				do;
					percent=count / _trtcnt(_trt) * 100;

					if percent > 0 then
						do;

							if round(percent, 0.1) GE 0.1 then
								_cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
							else
								_cpct="(*ESC*){nbspace 1}(0.0)";
							_cvalue=trim(_cvalue)||_cpct;
						end;
				end;
		end;

/*	if length(_cvalue) < 13 then */
/*		do; */
/*			substr(_cvalue, 13, 1)='A0'x; */
/*		end; */

	if first._EVENT33 then
		do;
			_rowsrt=_rowsrt + 1;
			_rowmax=max(_rowsrt, _rowmax);
		end;
	_datatyp='data';
	_indent=0;
	_dptindt=0;
	_vorder=1;
	_rowjump=1;
```

```
    if upcase(_rwlabel)='_NONE_' then
        _rwlabel=' ';
    _indent=6;
    _dptindt=0;

    if _trt=3 +1 then
        _trt=9999;

    if eof then
        call symput('_rowsrt', compress(put(_rowmax, 4.)));
    _direct="TOP ";
    _p=2;
run;

/* Crit 34 */
data _anal34;
    length DSDECODN 8;
    set _data1;
    where same and DSDECODN is not missing;
    _blcksrt=9;
    _cnt=1;
    _cat=1;

    if _trt <=0 then
        delete;
    output;
run;

proc sort data=_anal34;
    by _datasrt _blcksrt DSDECODN _trt _cat;
run;

data _temp34;
    set _anal34;
    output;
run;

proc sort data=_temp34 out=_temp934 nodupkey;
    by _datasrt _blcksrt _cat DSDECODN _trt usubjid;
    where RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not in (. 2)
        and (VAX201DT ne . or VAX202DT ne .) and ((unblnddt ne . and
        eosdcdt>=unblnddt) or eosdcdt=eotxdcdt) and index(armcd, 'PLACEBO');
run;

proc freq data=_temp934;
    format DSDECODN;
    tables _datasrt*_blcksrt*_cat * DSDECODN * _trt / sparse norow nocol nopercent
        out=_pct34(drop=percent);
run;

proc sort data=_anal34 out=_denom34(keep=_datasrt _cat) nodupkey;
    where RANDFL eq 'Y' and DSPHASEN=31 and EOSDCDT ne . and dsdecodn not in (. 2)
        and (VAX201DT ne . or VAX202DT ne .) and ((unblnddt ne . and
```

```
            eosdcdt>=unblnddt) or eosdcdt=eotxdcdt) and index(armcd, 'PLACEBO');
        by _datasrt _cat;
run;

data _denom34;
        set _denom34;
        by _datasrt _cat;
        label count='count';
        _trt=1;
        count=&_trt1.;
        output;
        _trt=2;
        count=&_trt2.;
        output;
        _trt=3;
        count=&_trt3.;
        output;
run;

data _denomf34;
        _datasrt=1;
        set _bydat1(keep=);
        * All treatment groups ;
        _trt1=0;
        _trt2=0;
        _trt3=0;
        * _CAT is the subgroup variable ;
        _cat=1;
        output;
run;

proc transpose data=_denom34 out=_denomin34(drop=_name_ _label_) prefix=_trt;
        by _datasrt _cat;
        var count;
        id _trt;
run;

proc sort data=_pct34 out=_expv34 (keep=_datasrt _blcksrt DSDECODN) nodupkey;
        by _datasrt _blcksrt DSDECODN;
run;

proc sort data=_expv34;
        by _datasrt _blcksrt DSDECODN;
run;

data _frame34;
        set _expv34;
        by _datasrt _blcksrt DSDECODN;

        if first._blcksrt then
                _catord=0;
        _catord + 1;
        _trt=1;
        _cat=1;
```

```
        output;
        _trt=2;
        _cat=1;
        output;
        _trt=3;
        _cat=1;
        output;
run;

proc sort data=_frame34;
        by _datasrt _blcksrt _cat DSDECODN _trt;
run;

proc sort data=_pct34;
        by _datasrt _blcksrt _cat DSDECODN _trt;
run;

data _pct34;
        merge _frame34(in=_inframe) _pct34;
        by _datasrt _blcksrt _cat DSDECODN _trt;

        if _inframe;

        if count=. then
                count=0;
run;

proc sort data=_pct34;
        by _datasrt _blcksrt DSDECODN;
run;

data _miss34(keep=_datasrt _blcksrt DSDECODN totcount);
        set _pct34;
        where DSDECODN=9998;
        retain totcount;
        by _datasrt _blcksrt DSDECODN;

        if first.DSDECODN then
                totcount=0;
        totcount=totcount+count;

        if last.DSDECODN;
run;

data _pct34(drop=totcount);
        merge _pct34 _miss34;
        by _datasrt _blcksrt DSDECODN;

        if totcount=0 then
                delete;
run;

proc sort data=_denomf34;
        by _datasrt _cat;
```

```
run;

proc sort data=_denomin34;
	by _datasrt _cat;
run;

data _denomin34;
	merge _denomf34(in=_inframe) _denomin34;
	by _datasrt _cat;

	if _inframe;
	_blcksrt=9;
run;

proc sort data=_pct34;
	by _datasrt _cat;
run;

data _pct34;
	if 0 then
		set _basetemplate;
	merge _denomin34(in=_a) _pct34;
	by _datasrt _cat;

	if _a;
	_varname="DSDECODN ";
	_vrlabel="Reason for withdrawal from the study ";
	_rwlabel=put(DSDECODN, dsdecod.);

	if DSDECODN=9998 then
		do;
			_rwlabel="Missing ";
			_catord=9998;
		end;
	else if DSDECODN=9999 then
		do;
			_rwlabel="Total ";
			_catord=9999;
		end;

	if _catord=. then
		_catord=9997;
run;

proc sort data=_pct34;
	by _datasrt _blcksrt _catord DSDECODN _trt _cat;
run;

data _base34;
	length _catlabl $200;
	set _pct34 end=eof;
	by _datasrt _blcksrt _catord DSDECODN _trt _cat;
	retain _rowsrt 4 _rowmax 0;
	array _trtcnt(*) _trt1-_trt4;
```

```
drop _rowmax _cpct;
length _cpct $100;
_cpct=' ';
_module='mcatstat';

if count > . then
	_cvalue=put(count, 5.);
else
	_cvalue=put(0, 5.);

if _trt ne . then
	do;

		if _trtcnt(_trt) > 0 then
			do;
				percent=count / _trtcnt(_trt) * 100;

				if percent > 0 then
					do;

						if round(percent, 0.1) GE 0.1 then
							_cpct="(*ESC*){nbspace 1}("||strip(put(percent, 5.1))||")";
						else
							_cpct="(*ESC*){nbspace 1}(0.0)";
						_cvalue=trim(_cvalue)||_cpct;
					end;
			end;
	end;

/*	if length(_cvalue) < 13 then */
/*		do; */
			*-------------------------------------------------------------------;
			* Put character A0x at right most character to pad text;
			*-------------------------------------------------------------------;
/*			substr(_cvalue, 13, 1)='A0'x; */
/*		end; */

	if first.DSDECODN then
		do;
			_rowsrt=_rowsrt + 1;
			_rowmax=max(_rowsrt, _rowmax);
		end;
	_datatyp='data';
	_indent=0;
	_dptindt=0;
	_vorder=1;
	_rowjump=1;

	if upcase(_rwlabel)='_NONE_' then
		_rwlabel=' ';
	_indent=8;
	_dptindt=4;

	if _trt=3 +1 then
```

```
            _trt=9999;

        if eof then
            call symput('_rowsrt', compress(put(_rowmax, 4.)));
        _direct="TOP ";
        _p=2;
run;

/* Set together */
data _final;
        set _base1 _base2 _base3 _base4 _base5 _base6 _base7 _base8 _base9 _base10
            _base11 _base12 _base13 _base14 _base15 _base16 _base17 _base18 _base19
            _base20 _base21 _base22 _base23 _base24 _base25 _base26 _base27 _base28
            _base29 _base30 _base31 _base32 _base33 _base34;
run;

proc sort data=_final;
        by _datasrt _blcksrt _rowsrt;
run;

data _final;
        set _final;
        drop __trt;

        if _trt=9999 then
            __trt=3 + 1;
        else
            __trt=_trt;

        if __trt=. then
            __trt=1;
        _column=_trt;

        if _column=9999 then
            _column=3 + 1;
run;

proc sort data=_final out=_final;
        by _datasrt _blcksrt _rowsrt _column;
run;

data _linecnt;
        set _final end=eof;
        by _datasrt _blcksrt _rowsrt _column;
        retain _totline _maxval _maxrow _rwlbtag _vrlbtag 0 _maxline _linecnt;
        keep _datasrt _blcksrt _totline _linecnt _maxrow;

        if _rowjump=. then
            _rowjump=1;

        if first._blcksrt then
            do;
                _token=repeat(' ', 99);
                _count=1;
```

```
            _token=scan(_vrlabel, _count, "|");

            if _token=: '_' then
                  _tag=1;
            else
                  _tag=0;

            do while(_token ^=' ');
                  _count=_count + 1;
                  _token=scan(_vrlabel, _count, "|");
            end;
            _linecnt=_count - 1 + _tag;
            ;
            _totline=_linecnt;

            if _vrlabel ne ' ' and _vrlabel ne '^' & _datatyp='data' then
                  _vrlbtag=1;
      end;

if first._rowsrt then
      do;
            _token=repeat(' ', 99);
            _count=1;
            _token=scan(_rwlabel, _count, "|");

            if _token=: '_' then
                  _tag=1;
            else
                  _tag=0;

            do while(_token ^=' ');
                  _maxrow=max(_maxrow, length(_token) + _indent);
                  _count=_count + 1;
                  _token=scan(_rwlabel, _count, "|");
            end;
            _maxline=_count - 1 + _tag;
            ;

            if _rwlabel ne ' ' then
                  _rwlbtag=1;
            _totline + _rowjump - 1;
      end;
_token=repeat(' ', 99);
_count=1;
_token=scan(_cvalue, _count, "|");

if _token=: '_' then
      _tag=1;
else
      _tag=0;

do while(_token ^=' ');
      _maxval=max(_maxval, length(_token));
      _count=_count + 1;
```

```
            _token=scan(_cvalue, _count, "|");
        end;
        _ccnt=_count - 1 + _tag;
        _maxline=max(_maxline, _ccnt);

        if last._rowsrt then
            _totline=_maxline + _totline;

        if last._blcksrt then
            do;
                _totline=_totline - _rowjump + 1;
                output;
            end;

        if eof then
            do;
                call symput('_valwid', compress(put(_maxval, 3.)));
                call symput('_rwlbtag', put(_rwlbtag, 1.));
                call symput('_vrlbtag', put(_vrlbtag, 1.));
            end;
run;

data _final;
        length _direct $20;
        _direct=' ';
        merge _final _linecnt;
        by _datasrt _blcksrt;
run;

data _sph (keep=name _s_col _e_col _splabl);
        length _splabl $ 200 _s_col $ 40 _e_col $ 40 name $ 40;
        _s_col=' ';
        _e_col=' ';
        _splabl=' ';
        name=' ';
        _s_col="TRT1";
        _e_col="TRT2";
        name=_s_col;
        _splabl="Vaccine Group (as Randomized)~{line}";
        output _sph;
        name=_e_col;
        output _sph;
        _s_col="TRT4";
        _e_col="TRT5";
        name=_s_col;
        _splabl="Vaccine Group (as Randomized)~{line}";
        output _sph;
        name=_e_col;
        output _sph;
run;

data _sph;
        set _sph;
        _s_col_num=input(translate(_s_col, " ", "TRT"), best.);
```

```
    _e_col_num=input(translate(_e_col, " ", "TRT"), best.);
run;

proc sort data=_sph (where=(_s_col=name)) out=_span_start;
    by _s_col_num descending _e_col_num;
run;

data _span_start;
    retain _span_hdr_order 1;
    set _span_start;
    by _s_col_num descending _e_col_num;

    if (first._s_col_num) then
        _span_hdr_order=1;
    else
        _span_hdr_order=_span_hdr_order + 1;
run;

proc sort data=_sph (where=(_e_col=name)) out=_span_end;
    by _e_col_num descending _s_col_num;
run;

data _span_end;
    retain _span_hdr_order 1;
    set _span_end;
    by _e_col_num descending _s_col_num;

    if (first._e_col_num) then
        _span_hdr_order=1;
    else
        _span_hdr_order=_span_hdr_order + 1;
run;

data _sph;
    set _span_start _span_end;
run;

proc sort data=_sph out=_sph nodupkey;
    by _s_col_num descending _e_col_num _s_col _e_col _splabl name;
run;

proc sql noprint;
    create table rspon as select distinct _trt, _column , _vrlabel as _rwlabel ,
        _datasrt, _blcksrt, (min(_rowsrt)-0.5) as _rowsrt , _dptindt as _indent , 0
        as _dptindt from _final(where=(_vrlabel^=' ')) group by _trt, _column ,
        _datasrt, _blcksrt, _vrlabel;
quit;

data outdata1;
    length _rvalue $800;
    set _final rspon end=eof;
    _rwindt=sum(_indent, _dptindt);

    if _rwindt <=0 then
```

```
            _rvalue=_rwlabel;
        else
/*          _rvalue=repeat(byte(160), _rwindt-1)||_rwlabel; */
        _rvalue=repeat('~{nbspace 1}', _rwindt-1)||_rwlabel;
        _dummy=1;

        if _trt=. then
            _trt=1;
run;

proc sort data=outdata1;
        by _datasrt _trt _blcksrt _rowsrt;
run;

data treat;
        length FMTNAME $8 start 8 label $200;
        fmtname='TREAT';

        do start=1 to 3 + ("N"="Y");
            label=symget('_TRTLB'|| compress(put(start, 4.)));
            label=trim(label)
                || "|   (N~{super a}=" || compress(symget("_TRT" || compress(put(start,
                4.)))) || ")"   || "|n~{super b}     (%)";
            output;
        end;
run;

data outdata1;
        set outdata1(rename=(_cvalue=_cvalue11));
        _fixvar=1;
        _fix2var=1;

        if index(_cvalue11, "(") then
            do;

                if substr(_cvalue11, length(_cvalue11), 1) ne ")" then
                    _cvalue=_cvalue11||")";
                else
                    _cvalue=_cvalue11;
            end;
        else if not missing(_cvalue11) then
            _cvalue=_cvalue11;
run;

proc sort data=outdata1;
        by _datasrt _trt _blcksrt _rowsrt;
run;

proc sort data=outdata1 out=_pre_transposed;
        by _fixvar _fix2var _datasrt _blcksrt _rowsrt _rvalue _trt;
run;

data _pre_transposed;
        set _pre_transposed;
```

```
        if _trt=9999 then
            _trt=3 +1;
run;

proc sql noprint;
        select min(_blcksrt) into: openord1 from _pre_transposed where
            index(upcase(_rwlabel), 'RANDOMIZED TO BNT162B2');
        select min(_blcksrt) into: openord2 from _pre_transposed where
            index(upcase(_rwlabel), 'RANDOMIZED TO PLACEBO');
        select max(_blcksrt) into: openord3 from _pre_transposed;
        select max(_column) into: totnx from _pre_transposed;
        select max(_trt) into: maxtrtx from _pre_transposed;
quit;

data _pre_transposed;
        set _pre_transposed;

        if &openord1.<=_blcksrt<&openord2. and (_trt=&maxtrtx. or (_trt=2 and
            count=0)) then
                _cvalue='';

        if &openord2.<=_blcksrt<=&openord3. and (_trt=&maxtrtx. or (_trt=1 and
            count=0)) then
                _cvalue='';
run;

proc transpose data=_pre_transposed out=_column_transposed (drop=_name_)
            prefix=TRT;
        by _fixvar _fix2var _datasrt _blcksrt _rowsrt _rvalue;
        var _cvalue;
        id _trt;
run;

data maxtrtv;
        set _pre_transposed;

        if _trt=3;
run;

proc transpose data=maxtrtv out=_cntsort (drop=_name_) prefix=cntsort;
        by _fixvar _fix2var _datasrt _blcksrt _rowsrt _rvalue;
        var count;
run;

data _column_transposed;
        merge _column_transposed(in=a) _cntsort;
        by _fixvar _fix2var _datasrt _blcksrt _rowsrt _rvalue;

        if a;
        cntsort=input(cntsort1, best.);
        drop cntsort1;
run;
```

```
proc sort;
	by _fixvar _fix2var _datasrt _blcksrt descending cntsort _rowsrt _rvalue;
run;

data _column_transposed;
	set _column_transposed;
	by _fixvar _fix2var _datasrt _blcksrt descending cntsort _rowsrt _rvalue;

	if _blcksrt=2 then
		do;

			if _rowsrt>1.5 then
				do;

					if first._blcksrt then
						srt=1;
					else
						srt+1;
					_rowsrt=1.5+srt;

					if index(upcase(_rvalue), 'OTHER')>0 then
						_rowsrt=999;

					if cntsort=0 then
						delete;
				end;
		end;

	if _blcksrt=4 then
		do;

			if _rowsrt>4.5 then
				do;

					if first._blcksrt then
						srt=1;
					else
						srt+1;
					_rowsrt=4.5+srt;

					if index(upcase(_rvalue), 'OTHER')>0 then
						_rowsrt=999;

					if cntsort=0 then
						delete;
				end;
		end;

	if _blcksrt=5 then
		do;

			if _rowsrt>7.5 then
				do;
```

```
                    if first._blcksrt then
                        srt=1;
                    else
                        srt+1;
                    _rowsrt=7.5+srt;

                    if index(upcase(_rvalue), 'OTHER')>0 then
                        _rowsrt=999;

                    if cntsort=0 then
                        delete;
                end;
        end;

if _blcksrt=7 then
        do;

            if _rowsrt>1.5 then
                do;

                    if first._blcksrt then
                        srt=1;
                    else
                        srt+1;
                    _rowsrt=1.5+srt;

                    if index(upcase(_rvalue), 'OTHER')>0 then
                        _rowsrt=999;

                    if cntsort=0 then
                        delete;
                end;
        end;

if _blcksrt=9 then
        do;

            if _rowsrt>4.5 then
                do;

                    if first._blcksrt then
                        srt=1;
                    else
                        srt+1;
                    _rowsrt=4.5+srt;

                    if index(upcase(_rvalue), 'OTHER')>0 then
                        _rowsrt=999;

                    if cntsort=0 then
                        delete;
                end;
        end;
drop srt cntsort;
```

```
run;

proc sort;
	by _fixvar _fix2var _datasrt _blcksrt _rowsrt _rvalue;
run;

proc contents data=_column_transposed
		out=_col_labels (where=(upcase(name)=: "TRT") keep=name) noprint;
run;

data _col_labels;
	length name $ 40;
	set _col_labels end=eof;
	_sort_order=_n_;
	name=upcase(name);

	if eof then
		call symput("_max_trt", left(put(_sort_order, best.)));
run;

proc sort data=_col_labels out=_col_labels;
	by name;
run;

proc sort data=_sph out=_sph;
	by name;
run;

data _final_sph;
	merge _col_labels (in=a) _sph;
	by name;

	if a;
run;

proc sort data=_final_sph out=_final_sph nodup;
	by _sort_order _span_hdr_order;
run;

data REPORT;
	set _column_transposed;
	_dummy=1;
run;

proc sort data=report;
	by _datasrt _blcksrt _rowsrt _dummy;
run;

/* Output report */
ods escapechar="~";
ods html file="&outtable.";
title1 "Disposition of All Randomized Subjects (*ESC*){unicode 2013} Phase 2/3 Subjects 12 Through 15 Years of
Age";
footnote1 "a.(*ESC*){nbspace 5}N = number of randomized subjects in the specified group, or the total sample. This
```

```
value is the denominator for the percentage calculations.";
footnote2
      "b.(*ESC*){nbspace 5}n = Number of subjects with the specified characteristic.";
footnote3 "c.(*ESC*){nbspace 5}Original blinded placebo-controlled vaccination period is defined as the time period
from Dose 1 to 1-month postâ€“Dose 2 visit.";
footnote4 "d.(*ESC*){nbspace 5}Open-label vaccination period is defined as the time period from Dose 3 (first dose of
BNT162b2 [30 (*ESC*){Unicode 00B5}g]) to 1-month postâ€“Dose 4 (second dose of BNT162b2 [30 (*ESC*)
{Unicode 00B5}g]) visit.";

proc report data=report nowd list missing contents="" split="|"
      style(report)={} style(header)={} style(column)={};
   column _fixvar _fix2var _datasrt _blcksrt _rowsrt ("" _rvalue)
      (("Vaccine Group (as Randomized)~{line}" TRT1 TRT2) TRT3 _dummy);
   define _fixvar / group noprint;
   define _fix2var / group noprint;
   define _datasrt / group order=internal noprint;
   define _blcksrt / group order=internal noprint;
   define _rowsrt / group order=internal noprint;
   define _rvalue / group id " " order=data style(column)={just=left width=25mm
      rightmargin=18px} style(header)={just=left asis=on} left;
   define _dummy / sum noprint;
   define TRT1 / group nozero "BNT162b2 (30 (*ESC*){unicode 03BC}g)|   (N~{super a}=&_trt1.)|n~{super b}
(%)"
      spacing=2 style(header)={just=center} center;
   define TRT2 / group nozero
      "Placebo|   (N~{super a}=&_trt2.)|n~{super b}     (%)" spacing=2
      style(header)={just=center} center;
   define TRT3 / group nozero
      "Total|   (N~{super a}=&_trt3.)|n~{super b}     (%)" spacing=2
      style(header)={just=center} center;
   break before _fixvar / contents="" page;
   compute before _fix2var;
      line @1 " ~n ";
   endcomp;
   compute after _blcksrt;
      line " ~n ";
   endcomp;
run;

ods markup close;
ods HTML close;

proc printto;
run;
```