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*************************************************************************************************
***************;
** Program Name   : adxb.sas                                                   **;
** Date Created   : 17Nov2021                                                  **;
** Programmer Name: (b) (4), (b) (6)                                              **;
** Purpose        : Create adxb dataset                                        **;
** Input data     : mb adsl adc19ef                                         **;
** Output data    : adxb.sas7bdat                                              **;
*************************************************************************************************
***************;
%let
oprot=/Volumes/app/cdars/prod/sites/cdars4/prjC459/nda2_unblinded_esub/sbla1215_esub_sdtm/saseng/cdisc3_0/data/
sdtm;
%let
protori=/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/analy
sis/eSUB;
%let
expath=/Volumes/app/cdars/prod/sites/cdars4/prjC459/nda2_unblinded_esub/sbla1215_esub_adam/saseng/cdisc3_0/out
put/xpt;

libname dataprot "&oprot." access=readonly;
libname datvprot "&protori./data_vai" access=readonly;
libname datvout "&prot./data_vai";

*Insert the date of snapshot;
%let cutoff2=02SEP2021;

proc printto print="&prot./output/adxb.rpt"
     log="&prot./logs/adxb.log" new;
run;

* Clean *;
proc delete data=work._all_;
run;

/******Bring in SDTM MB dataset****/
proc sort data=dataprot.mb(where=(mbtestcd="WGSCLINE")) out=xb;
  by usubjid mbdtc visitnum visit mbtestcd MBSTRESC;
run;

data xb;
  set xb;
  Length PARAMCD $8. PARAM PARCAT1 $200. PARAMN AVAL AVISITN 8. AVALC $20.
    AVISIT $80. ADT 8.;
  Format ADT date9.;
  PARAM=strip(MBTEST);
  PARAMCD=strip(MBTESTCD);
  PARCAT1=strip(MBCAT);

  IF upcase(MBTESTCD)="WGSCLINE" then
    PARAMN=1;
```

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  AVAL=.;
  AVALC=strip(MBSTRESC);
  AVISITN=VISITNUM;
  AVISIT=strip(VISIT);
  ADT=input(mbdtc, ?? yymmdd10.);
  Keep Usubjid PARAMCD PARAM PARCAT1 PARAMN AVAL AVALC AVISITN AVISIT ADT VISIT
    VISITNUM;
run;

/*********Bring in required Variable from ADSL dataset*****/
proc sort data=datvprot.adsl(keep=studyid usubjid siteid subjid agegr1n agegr1
     sex race ethnic country armcd arm actarmcd actarm randdt trtsdt trtedt trt01a
     trt01an trt01p trt01pn vax101dt vax102dt dvstdt unblnddt randfl evaleffl
     aai1effl aai2effl /*mulenrfl*/ phase phasen hivfl) out=adsl;
  by usubjid;
run;

/****Bring in ADC19EF dataset to create required Flags***/
proc sort data=datvprot.adc19ef out=adc19ef;
  by usubjid;
run;

data eff1(keep=usubjid PDP27FL) eff2(keep=usubjid FC19D27 AVISIT);
  set adc19ef;
  by usubjid;

  if first.usubjid then
    output eff1;

  if paramcd in ("C19ONST") and FILOCRFL="Y" and AVALC="POS" and ILD27FL="Y"
    and ((not missing(DVSTDT) and adt <=DVSTDT) or missing(DVSTDT)) and
    PDRMUPFL="N" and EVALEFFL='Y' then
      do;
      FC19D27="Y";
      output eff2;
    end;
run;

/***get swab dates and visit from adc19ef dataset for first Occurence****/
proc sort data=adc19ef(where=(paramcd in ("RTCOV2NS" "SARSCOV2") and avalc="POS")) out=posswab;
  by usubjid avisit;
run;

data eff21(keep=usubjid FC19D27 AVISIT visit adt);
  merge eff2(in=a) posswab;
  by usubjid avisit;
  if a;
run;

proc sort nodupkey;
  by usubjid visit adt;
run;

data feff(drop=avisit);
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  set eff21;
  by usubjid visit adt;
run;

/***Derive State from Pfizer Corporate Registry Database (based on Investigator ID)****/
data country;
  length studyid $20. siteid $12. state $100.;
  infile datalines delimiter=':';
  input studyid $ siteid $ state $;
  datalines;
C4591001: 1005:  NEW YORK
C4591001: 1006:  UTAH
C4591001: 1007:  OHIO
C4591001: 1008:  MISSOURI
C4591001: 1009:  UTAH
C4591001: 1013:  FLORIDA
C4591001: 1016:  KENTUCKY
C4591001: 1039:  TEXAS
C4591001: 1044:  VIRGINIA
C4591001: 1057:  FLORIDA
C4591001: 1084:  TEXAS
C4591001: 1091:  OHIO
C4591001: 1123:  NEBRASKA
C4591001: 1124:  RHODE ISLAND
C4591001: 1139:  NORTH CAROLINA
C4591001: 1142:  TEXAS
C4591001: 1150:  OHIO
C4591001: 1152:  CALIFORNIA
C4591001: 1156:  FLORIDA
C4591001: 1235:  LOUISIANA
C4591001: 1270:  CALIFORNIA
  ;
run;

proc sort data=adsl;
  by studyid siteid usubjid;
run;

proc sort data=country out=state(keep=studyid siteid state);
  by studyid siteid;
run;

data adsl;
  merge adsl(in=a) state;
  by studyid siteid;
  if a;
run;

proc sort data=adsl;
  by usubjid;
run;

/*******merge all datasets to create ADXB dataset****/
data adxb_;
```

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  merge adsl(in=a) xb(in=b) eff1;
  by usubjid;

  if a and b;
  length ADY 8.;

  if trtsdt ^=. and adt ^=. then do;
    ady=adt - trtsdt;
    if adt >=trtsdt then ady=ady + 1;
  end;
run;

proc sort;
  by usubjid visit adt;
run;

data adxb_1(drop=visit visitnum);
  merge adxb_(in=a) feff;
  by usubjid visit adt;

  if a;

  if FC19D27="" then FC19D27="N";
run;

/********Expand all the USA state Abbreviations as per Specifications****/
data adxb_2;
  set adxb_1;

  if upcase(country)="USA" then do;

      if State="AK"       then state="ALASKA";
      else if State="AL"  then state="ALABAMA";
      else if State="AR"  then state="ARKANSAS";
      else if State="AZ"  then state="ARIZONA";
      else if State="CA"  then state="CALIFORNIA";
      else if State="CO"  then state="COLORADO";
      else if State="CT"  then state="CONNECTICUT";
      else if State="DE"  then state="DELAWARE";
      else if State="FL"  then state="FLORIDA";
      else if State="GA"  then state="GEORGIA";
      else if State="HI"  then state="HAWAII";
      else if State="IA"  then state="IOWA";
      else if State="ID"  then state="IDAHO";
      else if State="IL"  then state="ILLINOIS";
      else if State="IN"  then state="INDIANA";
      else if State="KS"  then state="KANSAS";
      else if State="KY"  then state="KENTUCKY";
      else if State="LA"  then state="LOUISIANA";
      else if State="MA"  then state="MASSACHUSETTS";
      else if State="MD"  then state="MARYLAND";
      else if State="ME"  then state="MAINE";
      else if State="MI"  then state="MICHIGAN";
      else if State="MN"  then state="MINNESOTA";
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        else if State="MO"  then state="MISSOURI";
        else if State="MS"  then state="MISSISSIPPI";
        else if State="MT"  then state="MONTANA";
        else if State="NC"  then state="NORTH CAROLINA";
        else if State="ND"  then state="NORTH DAKOTA";
        else if State="NE"  then state="NEBRASKA";
        else if State="NH"  then state="NEW HAMPSHIRE";
        else if State="NJ"  then state="NEW JERSEY";
        else if State="NM"  then state="NEW MEXICO";
        else if State="NV"  then state="NEVADA";
        else if State="NY"  then state="NEW YORK";
        else if State="OH"  then state="OHIO";
        else if State="OK"  then state="OKLAHOMA";
        else if State="OR"  then state="OREGON";
        else if State="PA"  then state="PENNSYLVANIA";
        else if State="RI"  then state="RHODE ISLAND";
        else if State="SC"  then state="SOUTH CAROLINA";
        else if State="SD"  then state="SOUTH DAKOTA";
        else if State="TN"  then state="TENNESSEE";
        else if State="TX"  then state="TEXAS";
        else if State="UT"  then state="UTAH";
        else if State="VA"  then state="VIRGINIA";
        else if State="VT"  then state="VERMONT";
        else if State="WA"  then state="WASHINGTON";
        else if State="WI"  then state="WISCONSIN";
        else if State="WV"  then state="WEST VIRGINIA";
        else if State="WY"  then state="WYOMING";

    end;
    drop MULENRFL;
run;

/******Assign Labels****/
data adxb;
      retain STUDYID USUBJID SITEID SUBJID AGEGR1N AGEGR1 SEX RACE ETHNIC COUNTRY STATE
         ARMCD ARM ACTARMCD ACTARM RANDDT TRTSDT TRTEDT TRT01A TRT01AN TRT01P
TRT01PN
         VAX101DT VAX102DT DVSTDT UNBLNDDT RANDFL EVALEFFL AAI1EFFL AAI2EFFL
         MULENRFL PHASE PHASEN HIVFL PARAMN PARAMCD PARAM PARCAT1 AVAL AVALC
AVISITN AVISIT
         ADT ADY PDP27FL FC19D27 ;
      set adxb_2;
      label
         PARAMN   = "Parameter (N)"
         PARAMCD  = "Parameter Code"
         PARAM    = "Parameter"
         PARCAT1  = "Parameter Category 1"
         AVAL     = "Analysis Value"
         AVALC    = "Analysis Value (C)"
         AVISITN  = "Analysis Visit (N)"
         AVISIT   = "Analysis Visit"
         ADT      = "Analysis Date"
         ADY      = "Analysis Relative Day"
         FC19D27  = "First COVID Onset 7D Post D2 (PD)"
```

```
        STATE    ="State"
        ;
run;

*******************************************************************************************;
* Output datasets *;
*******************************************************************************************;
proc sort data=adxb out=datvout.adxb(label="Sequencing Analysis Dataset");
  by studyid usubjid paramn adt;
run;

proc printto;
run;
```