**Supplemental Digital Content**

Robustness of NHANES Estimates of the U.S. Prevalence of a Positive Tuberculin Skin Test

**eTable** **1**. Unweighted Tuberculosis (TB) Infection Test Results by Self-Reported History — National Health and Nutrition Examination Survey (NHANES), 1999–2000 and 2011–2012

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**eTable** **3**. Differences in Estimated Population Prevalence of a Tuberculin Skin Test (TST) Result ≥10 mm among Participants Aged ≥6 Years with Valid TST Results, by Type of Household Represented — 1999–2000 and 2011–2012

**eAppendix, Replication Code**. SAS (SAS Institute, Cary, NC) and SAS-callable SUDAAN (Research Triangle Institute, Research Triangle Park, NC) code for replicating 1999-2000 and 2011-2012 NHANES analysis using public-use data available at <https://www.cdc.gov/nchs/nhanes/>

**eTable 1**. Unweighted Tuberculosis (TB) Infection Test Results by Self-Reported History — National Health and Nutrition Examination Survey (NHANES), 1999–2000 and 2011–2012

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| **Among the 7,386 NHANES Examined Participants With Complete TST Results, 1999–2000** |
| **Self-Reported TB History** | **NHANES Test for TB Infection** |
| **TST ≥10 mm****Unweighted****No. (Percent)** | **Positive IGRA** |
| History of active TB  (*n* = 23) | 7 (30.4) | Test not available in 1999–2000 NHANES |
| History of positive TST but no active TB (*n* = 275) | 97 (35.3) | Test not available in 1999–2000 NHANES |
| No personal TB/positive TST history but lived in household of someone with active TB (*n* = 190) | 25 (13.2) | Test not available in 1999–2000 NHANES |
| None of the above (*n* = 6,898) | 281 (4.1) | Test not available in 1999–2000 NHANES |

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| **Among the 6,128 NHANES Examined Participants With Complete TST Results,** **6,068 (99.0) Also Had IGRA Blood Test Results, 2011–2012** |
| **Self-Reported TB History**  | **NHANES Test for TB Infection** |
| **TST ≥10 mm****Unweighted****No. (Percent)** | **Positive IGRA****Unweighted****No. (Percent)** |
| History of active TB  (*n* = 32) | 14 (43.8) | 18 (56.3) of 32 tested |
| History of positive TST but no active TB (*n* = 203) | 87 (42.9) | 63 (31.2) of 202 tested |
| No personal TB/positive TST history but lived in household of someone with active TB (*n* = 144) | 13 (9.0) | 12 (8.3) of144 tested |
| None of the above (*n* = 5,749)  | 322 (5.6) | 336 (5.9) of 5,690 tested |

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| **Among the 1,693 Examined NHANES Participants with TST Item Nonresponse,** **1,024 (60.5) Had IGRA Blood Test Results, 2011–2012** |
| **Self-Reported TB History** | **NHANES Test for TB Infection** |
|  | **Positive IGRA Unweighted****No. (Percent)** |
| History of active TB (*n* = 10) | TST item nonresponse | 2 (28.6) of 7 tested |
| History of positive TST but no active TB (*n* = 109)  | TST item nonresponse | 32 (36.4) of 88 tested |
| No personal TB/positive TST history but lived in household of someone with active TB (*n* = 32) | TST item nonresponse | 3 (14.3) of 21 tested |
| None of the above (*n* = 1,542) | TST item nonresponse | 70 (7.7) of 908 tested |

Abbreviations: NHANES, National Health and Nutrition Examination Survey; TB, tuberculosis; TST, tuberculin skin test; IGRA, interferon gamma release assay (blood test for TB)

**eTable 2.** Influence of Using Different National Health and Nutrition Examination Survey (NHANES) Sample Design Parameters on the Estimated Population Prevalence of a Tuberculin Skin Test (TST) Result ≥10 mm — 1971–1972, 1999–2000, and 2011–2012

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| **NHANES cycle,****participants with complete TST results, and corresponding****noninstitutionalized U.S. civilian population**  | **Nesting variables used in the analysis** | **Weighted percent prevalence (and 95% CI) using the standard****masked design variables in public-use dataset** | **Weighted percent prevalence (and 95% CI) using the unmasked true design variables** (only available in the Research Data Center for 1999–2000 and 2011–2012) |
| **NHANES 1971–1972** **All participants aged 25‒74 years** n=1,494 weighted to represent 81 million persons  | ***conventional 2-level analysis*****major stratum, primary sampling unit (PSU)** |  | 14.4(11.4–18.1) |
| *3-level, adding level of household* major stratum, PSU, household ID |  | **14.4****(12.4–16.7)** |
| **NHANES 1999–2000** **All participants aged 25‒74 years** n=3,012 participants weighted to represent 140 million persons | ***conventional 2-level analysis*****major stratum, PSU** | 5.5(4.4‒7.0) | 5.5(3.9‒7.8) |
| *3-level, adding level of Census tract* major stratum, PSU, Census tract |  | 5.5(4.6‒6.7) |
| *4-level, adding level of block group* major stratum, PSU, Census tract, block group  |  | 5.5(4.7‒6.5) |
| *5-level, adding individual block* major stratum, PSU, tract, block group, block  |  | 5.5(4.7‒6.5) |
| *6-level, adding household* stratum, PSU, tract, block group, block, household |  | 5.5(4.6‒6.6) |
| **NHANES 2011–2012** **All participants aged 25‒74 years** n=3,439 participants weighted to represent 154 million persons | ***conventional 2-level analysis*****major stratum, PSU** | 5.3(3.7‒7.5) | 5.3(3.7‒7.5) |
| *3-level, adding level of Census tract* major stratum, PSU, Census tract |  | 5.3(4.5‒6.2) |
| *4-level, adding level of block group* major stratum, PSU, Census tract, block group  |  | 5.3(4.5‒6.2) |
| *5-level, adding individual block* major stratum, PSU, tract, block group, block  |  | 5.3(4.6‒6.1) |
| *6-level, adding household* stratum, PSU, tract, block group, block, household |  | 5.3(4.6‒6.1) |

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| **NHANES 1999–2000** **All participants aged ≥1 year** n=7,386 participants weighted to represent 228 million persons | ***conventional 2-level analysis*****major stratum, PSU** | 4.2(3.3‒5.2) | 4.2(3.0‒5.7) |
| *3-level, adding level of Census tract* major stratum, PSU, Census tract |  | 4.1(3.4‒5.0) |
| *4-level, adding level of block group* major stratum, PSU, Census tract, block group  |  | 4.2(3.5‒4.9) |
| *5-level, adding individual block* major stratum, PSU, tract, block group, block  |  | 4.2(3.5‒4.9) |
| *6-level, adding household* stratum, PSU, tract, block group, block, household |  | 4.2(3.5‒4.9) |
| **NHANES 1999–2000** **All participants aged ≥6 years**n=6,679 participants weighted to represent 215 million persons | ***conventional 2-level analysis*****major stratum, PSU** | 4.4(3.5‒5.5) | 4.4(3.1‒6.0) |
| *3-level, adding level of Census tract* major stratum, PSU, Census tract |  | 4.4(3.6‒5.3) |
| *4-level, adding level of block group* major stratum, PSU, Census tract, block group  |  | 4.4(3.7‒5.2) |
| *5-level, adding individual block* major stratum, PSU, tract, block group, block  |  | 4.4(3.7‒5.1) |
| *6-level, adding household* stratum, PSU, tract, block group, block, household |  | **4.4****(3.7‒5.2)** |
| **NHANES 2011–2012****All participants aged ≥6 years**n=6,128 participants weighted to represent 228 million persons | ***conventional 2-level analysis*****major stratum, PSU** | 4.3(3.0‒5.9) | 4.3(3.0‒6.1) |
| *3-level, adding level of Census tract* major stratum, PSU, Census tract |  | 4.3(3.7‒4.9) |
| *4-level, adding level of block group* major stratum, PSU, Census tract, block group  |  | 4.3(3.7‒5.0) |
| *5-level, adding individual block* major stratum, PSU, tract, block group, block  |  | 4.3(3.7‒4.9) |
| *6-level, adding household* stratum, PSU, tract, block group, block, household |  | **4.3****(3.7‒4.8)** |

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| **NHANES 1971–1972** **U.S.-born participants aged 25‒74 years** n=1,353 weighted to represent 74 million persons  | ***conventional 2-level analysis*****major stratum, PSU** |  | 12.5(9.6–16.2) |
| *3-level, adding level of household* major stratum, PSU, household ID |  | 12.5(10.6–14.7) |
| **NHANES 1999–2000** **U.S.-born participants aged ≥6 years**n=5,252 weighted to represent 183 million persons  | ***conventional 2-level analysis*****major stratum, PSU** | 1.9(1.4‒2.6) | 1.9(1.4‒2.7) |
| *3-level, adding level of Census tract* major stratum, PSU, Census tract |  | 1.9(1.5‒2.5) |
| *4-level, adding level of block group* major stratum, PSU, Census tract, block group  |  | 1.9(1.5‒2.5) |
| *5-level, adding individual block* major stratum, PSU, tract, block group, block  |  | 1.9(1.6‒2.4) |
| *6-level, adding household* stratum, PSU, tract, block group, block, household |  | 1.9(1.6‒2.4) |
| **NHANES 2011–2012** **U.S.-born participants aged ≥6 years**n=4,684 weighted to represent 193 million persons  | ***conventional 2-level analysis*****major stratum, PSU** | 1.5(0.9‒2.5) | 1.5(0.8‒2.7) |
| *3-level, adding level of Census tract* major stratum, PSU, Census tract |  | 1.5(1.1‒1.9) |
| *4-level, adding level of block group* major stratum, PSU, Census tract, block group  |  | 1.5(1.1‒2.0) |
| *5-level, adding individual block* major stratum, PSU, tract, block group, block  |  | 1.5(1.1‒2.0) |
| *6-level, adding household* stratum, PSU, tract, block group, block, household |  | 1.5(1.1‒1.9) |

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| **NHANES 1971–1972** **Non-U.S.‒born participants aged 25‒74 years** n=129 weighted to represent 6 million persons  | ***conventional 2-level analysis*****major stratum, PSU** |  | 39.3(28.0–51.8) |
| *3-level, adding level of household* major stratum, PSU, household ID |  | 39.3 (28.3–51.4) |
| **NHANES 1999–2000** **Non-U.S.‒born participants aged ≥6 years**n=1,423 weighted to represent 31 million persons  | ***conventional 2-level analysis*****major stratum, PSU** | 18.5(13.5‒24.8) | 18.5(13.0‒25.6) |
| *3-level, adding level of Census tract* major stratum, PSU, Census tract |  | 18.5(14.9‒22.7) |
| *4-level, adding level of block group* major stratum, PSU, Census tract, block group  |  | 18.5(15.2‒22.4) |
| *5-level, adding individual block* major stratum, PSU, tract, block group, block  |  | 18.5(15.4‒22.0) |
| *6-level, adding household* stratum, PSU, tract, block group, block, household |  | 18.5(14.9‒22.8) |
| **NHANES 2011–2012** **Non-U.S.‒born participants aged ≥6 years**n=1,441 weighted to represent 35 million persons  | ***conventional 2-level analysis*****major stratum, PSU** | 19.8(15.1‒25.5) | 19.8(15.1‒25.5) |
| *3-level, adding level of Census tract* major stratum, PSU, Census tract |  | 19.8(17.5‒22.3) |
| *4-level, adding level of block group* major stratum, PSU, Census tract, block group  |  | 19.8(17.2‒22.6) |
| *5-level, adding individual block* major stratum, PSU, tract, block group, block  |  | 19.8(17.3‒22.5) |
| *6-level, adding household* stratum, PSU, tract, block group, block, household |  | 19.8(17.5‒22.3) |

Abbreviations: CI, confidence interval; NHANES, National Health and Nutrition Examination Survey; PSU, primary sampling unit; TST, tuberculin skin test

**eFigure**. Relative U.S. Population Weights of National Health and Nutrition Examination Survey (NHANES) Participants Aged ≥6 Years with Valid Tuberculin Skin Test Results, by Type of Household Represented — 1999–2000 and 2011–2012

Relative weights of NHANES participants aged ≥6 years with valid TST results, by type of household
(number of persons represented by those partipants, rounded to the millions)

U.S.-born in households with other U.S.-born participants

U.S.-born in households with mix of U.S.-born and non-U.S.-born

U.S.-born who were household’s only representative

Non-U.S.-born in households with other non-U.S.-born participants

Non-U.S.-born in households with mix of U.S.-born and non-U.S.-born

Non-U.S.-born who were household’s only representative

NHANES 1999–2000 (total population represented = 215 million) NHANES 2011–2012 (total population represented = 228 million)



Notes to accompany figure:

In both cycles, the number of participants per household aged ≥6 years with TST results was usually 2, in some cases 3 or 4, but rarely >4.

In the 1,226 selected households in 1999–2000 and 1,105 selected households in 2011–2012 with ≥2 U.S.-born participants and zero non-U.S.-born participants, within-household concordance of TST results was ≥94% in both cycles. In 1,151 households in 1999–2000 and in 1,044 households in 2011–2012, all U.S.-born participants had negative TST results. The number of households where all participants had positive TST results is too small to report. In the remaining households, there was ≥1 U.S.-born person with positive results and ≥1 U.S.-born person with negative results.

In the 242 selected households in 1999–2000 and 255 selected households in 2011–2012 with ≥2 non-U.S.-born participants and zero U.S.-born participants, within-household concordance of TST results was 73% and 65%, respectively. In a total of 325 households across both cycles, all non-U.S.-born participants had negative TST results. In 19 households, all non-U.S.-born participants had positive TST results. In the remaining 153 households, there was ≥1 non-U.S.-born person with positive results and ≥1 non-U.S.-born person with negative results.

In the 286 selected households in 1999–2000 and 266 selected households in 2011–2012 with both U.S.-born and non-U.S.-born participants, within-household concordance of TST results was 68% and 66%, respectively. In approximately two-thirds of households, all examined household members had negative TST results. The number of households where all participants had positive TST results is too small to report. In approximately 20% of households, ≥1 non-U.S.-born member had positive TST results while all U.S.-born members had negative TST results. In approximately 10% of households, ≥1 U.S.-born member had positive TST results while all non-U.S.-born persons had negative TST results.

Depending on the household member’s sex, age, and race/ethnicity, individual participant weights varied widely. **SDC Table 3** demonstrates the weighted prevalence of a positive TST, by type of household.

**eTable** **3.** Differences in Estimated Population Prevalence of a Tuberculin Skin Test (TST) Result ≥10 mm among Participants Aged ≥6 Years with Valid TST Results, by Type of Household — 1999–2000 and 2011–2012

|  |  |  |
| --- | --- | --- |
| **NHANES cycle and****participant category by household type****(n=unweighted no. survey participants)** | **Weighted percent prevalence (and 95% CI) of a positive TST** | **Weighted prevalence difference (and 95% CI), compared to referent prevalence** |
|  | **Among participants who were their household’s only examined participant** **aged ≥6 years** | **Among participants from households with ≥2 examined participants****aged ≥6 years** |  |
| **NHANES 1999–2000** **U.S.-born only****(n=4,741)** | **2.0% (1.4%–3.0%)**this is the referent prevalence for allU.S.-born participants | 1.7% (0.7%–3.7%) | –0.4% (–2.1% to +1.4%)no difference |
| **NHANES 1999–2000 U.S.-born participants in households with both U.S.-born and non-U.S.-born participants (n=499)** | this cell not applicable | 7.8% (4.9%–12.2%) | **+5.7% (+1.9% to +9.6%)**  |
| **NHANES 1999–2000****Non-U.S.-born only (n=979)** | **12.0% (7.4%–18.7%)**this is the referent prevalence for allnon-U.S.-born participants | 18.1% (10.3%–30.0%) | +6.2% (–2.5% to +14.9%) no difference |
| **NHANES 1999–2000****Non-U.S.-born participants in households with both U.S.-born and non-U.S.-born participants (n=456)** | this cell not applicable | 16.0% (10.8%–23.3%) | +4.1% (–4.7% to +12.8%) no difference |
| **NHANES 2011–2012** **U.S.-born only (n=4,243)** | **2.1% (1.1%–4.0%)**this is the referent prevalence for allU.S.-born participants | 1.3% (0.6%–2.5%) | –0.8% (–1.9% to +0.2%)no difference |
| **NHANES 2011–2012 U.S.-born participants in households with both U.S.-born and non-U.S.-born participants (n=433)** | this cell not applicable | 6.0% (3.6%–9.8%) | **+3.9% (+0.9% to +7.0%)**  |
| **NHANES 2011–2012****Non-U.S.-born only****(n=998)** | **18.5% (12.1%–27.1%)**this is the referent prevalence for allnon-U.S.-born participants | 19.6% (14.6%–25.7%) | +1.1% (–4.2% to +6.4%) no difference |
| **NHANES 2011–2012****Non-U.S.-born participants in households with both U.S.-born and non-U.S.-born participants (n=453)** | this cell not applicable | 16.6% (10.4%–25.4%) | –1.8% (–10.4% to +6.7%) no difference |

Abbreviations: CI, confidence interval; NHANES, National Health and Nutrition Examination Survey; TST, tuberculin skin test

**eAppendix, Replication Code**. SAS (SAS Institute, Cary, NC) and SAS-callable SUDAAN (Research Triangle Institute, Research Triangle Park, NC) code for replicating 1999-2000 and 2011-2012 NHANES analysis using public-use data available at <https://www.cdc.gov/nchs/nhanes/>

libname nhanes '\\ place libname path here ';

**data** work.nh9900\_9282;

 set nhanes.nh9900;

 if RIDSTATR = **2** ; /\*to subset to the 9282 survey participants

 undergoing 1999-2000 NHANES exam\*/

 /\*but note that only those age 1+ eligible for TST (n=8956)

 --> interested in the subset of 7819 age 6+ for better comparison to 2011-2012\*/

/\* from TB data file in 1999-2000 NHANES

 • TBDPPDS - PPDS induration (mm) \*/

 if TBDPPDS = **0** then TST1 = **1**;

 else if **0** < TBDPPDS < **10** then TST1 = **2**;

 else if **10** le TBDPPDS < **77** then TST1 = **3**;

 else TST1 = **9**;

 if TST1 ne **9** then VALID\_TST = **1**; else VALID\_TST = **2**;

/\* from TBQ data file in 1999-2000 NHANES

 • TBQ020 - Ever told had positive TB skin test equiv is TBQ022 in 2011-2012

 • TBQ030 - Prescribed medicine for preventing TB

 • TBQ040 - Ever told you had active TB

 • TBQ050 - Prescribed medicine for active TB

 • TBQ060 - Lived in household TB sick person \*/

 if TBQ040 = **1** then Hx = 'active TB';

 else if TBQ050 = **1** then Hx = 'active TB';

 /\*though turns out unnecessary because they are a subset\*/

 else if TBQ020 = **1** then Hx = 'pos TST';

 else if TBQ030 = **1** then Hx = 'LTBI Tx';

 /\*also unnecessary because they are a subset\*/

 else if TBQ060 = **1** then Hx = 'household';

 else Hx = 'none';

/\*create new var SRTH = self-reported TB Hx\*/

 if Hx in ('LTBI Tx', 'active TB', 'pos TST') then SRTH = **1**;

 else SRTH = **2**;

/\* from DEMO data file in 1999-2000 NHANES

 • RIDAGEYR - Age in years at screening

 • RIDRETH2 - Linked NH3 Race/Ethnicity

 • DMDBORN - Country of Birth \*/

 if RIDAGEYR > **5** then AGE6up = **1**; else AGE6up = **0**;

 if RIDAGEYR < **1** then AGEGP\_SUBD = **0**; /\*age < 1 yr\*/

 else if RIDAGEYR < **6** then AGEGP\_SUBD = **10**; /\*ages 1- 5\*/

 else if RIDAGEYR < **12** then AGEGP\_SUBD = **11**; /\*ages 6-11\*/

 else if RIDAGEYR < **16** then AGEGP\_SUBD = **12**; /\*ages 12-15\*/

 else if RIDAGEYR < **20** then AGEGP\_SUBD = **16**; /\*ages 16-19\*/

 else if RIDAGEYR < **30** then AGEGP\_SUBD = **20**; /\*ages 20-29\*/

 else if RIDAGEYR < **40** then AGEGP\_SUBD = **30**; /\*ages 30-39\*/

 else if RIDAGEYR < **50** then AGEGP\_SUBD = **40**; /\*ages 40-49\*/

 else if RIDAGEYR < **60** then AGEGP\_SUBD = **50**; /\*ages 50-59\*/

 else if RIDAGEYR < **70** then AGEGP\_SUBD = **60**; /\*ages 60-69\*/

 else if RIDAGEYR < **80** then AGEGP\_SUBD = **70**; /\*ages 70-79\*/

 else AGEGP\_SUBD = **80**; /\*age 80+ yrs\*/

if AGEGP\_SUBD in (**0**, **10**)then GROUPING = 'tooyoung';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and RIDRETH2 = **2** and DMDBORN = **1** ) then GROUPING = 'B0619\_US';

else if ( AGEGP\_SUBD in (**20**,**30**) and RIDRETH2 = **2** and DMDBORN = **1** ) then GROUPING = 'B2039\_US';

else if ( AGEGP\_SUBD in (**40**,**50**) and RIDRETH2 = **2** and DMDBORN = **1** ) then GROUPING = 'B4059\_US';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and RIDRETH2 = **2** and DMDBORN = **1** ) then GROUPING = 'B6000\_US';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and RIDRETH2 = **2** and DMDBORN = **2** ) then GROUPING = 'B0619\_FB';

else if ( AGEGP\_SUBD in (**20**,**30**) and RIDRETH2 = **2** and DMDBORN = **2** ) then GROUPING = 'B2039\_FB';

else if ( AGEGP\_SUBD in (**40**,**50**) and RIDRETH2 = **2** and DMDBORN = **2** ) then GROUPING = 'B4059\_FB';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and RIDRETH2 = **2** and DMDBORN = **2** ) then GROUPING = 'B6000\_FB';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and RIDRETH2 = **3** and DMDBORN = **1** ) then GROUPING = 'M0619\_US';

else if ( AGEGP\_SUBD in (**20**,**30**) and RIDRETH2 = **3** and DMDBORN = **1** ) then GROUPING = 'M2039\_US';

else if ( AGEGP\_SUBD in (**40**,**50**) and RIDRETH2 = **3** and DMDBORN = **1** ) then GROUPING = 'M4059\_US';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and RIDRETH2 = **3** and DMDBORN = **1** ) then GROUPING = 'M6000\_US';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and RIDRETH2 = **3** and DMDBORN = **2** ) then GROUPING = 'M0619\_FB';

else if ( AGEGP\_SUBD in (**20**,**30**) and RIDRETH2 = **3** and DMDBORN = **2** ) then GROUPING = 'M2039\_FB';

else if ( AGEGP\_SUBD in (**40**,**50**) and RIDRETH2 = **3** and DMDBORN = **2** ) then GROUPING = 'M4059\_FB';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and RIDRETH2 = **3** and DMDBORN = **2** ) then GROUPING = 'M6000\_FB';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and DMDBORN = **1** ) then GROUPING = 'W0619\_US';

else if ( AGEGP\_SUBD in (**20**,**30**) and DMDBORN = **1** ) then GROUPING = 'W2039\_US';

else if ( AGEGP\_SUBD in (**40**,**50**) and DMDBORN = **1** ) then GROUPING = 'W4059\_US';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and DMDBORN = **1**) then GROUPING = 'W6000\_US';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and DMDBORN = **2** ) then GROUPING = 'W0619\_FB';

else if ( AGEGP\_SUBD in (**20**,**30**) and DMDBORN = **2** ) then GROUPING = 'W2039\_FB';

else if ( AGEGP\_SUBD in (**40**,**50**) and DMDBORN = **2** ) then GROUPING = 'W4059\_FB';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and DMDBORN = **2**) then GROUPING = 'W6000\_FB';

else GROUPING = 'unclass';

/\*IMPUTATIONS for missing TST results:

 IMP\_2 (best estimate if MAR) -

 within the subgroup of profile participants who had the same

 (binary variable) SRTH / self-reported personal TB history

 IMP\_3 and IMP\_4 (extreme MNAR assumptions) -

 IMP\_3 - all persons had positive instead of missing TST results

 IMP\_4 - and all persons had negative instead of missing TST results\*/

if (TST\_VALID = **1** and TST1 = **3**) then do; IMP\_2 = **1** ; IMP\_3 = **1** ; IMP\_4 = **1** ; end;

else if (TST\_VALID = **1** and TST1 in (**1**,**2**)) then do; IMP\_2 = **0** ; IMP\_3 = **0** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B0619\_US' and SRTH = **1**) then do; IMP\_2 = **0.140** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B0619\_US' and SRTH = **2**) then do; IMP\_2 = **0.005** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B0619\_FB' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B0619\_FB' and SRTH = **2**) then do; IMP\_2 = **0.117** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B2039\_US' and SRTH = **1**) then do; IMP\_2 = **0.362** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B2039\_US' and SRTH = **2**) then do; IMP\_2 = **0.042** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B2039\_FB' and SRTH = **1**) then do; IMP\_2 = **0.469** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B2039\_FB' and SRTH = **2**) then do; IMP\_2 = **0.159** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B4059\_US' and SRTH = **1**) then do; IMP\_2 = **0.468** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B4059\_US' and SRTH = **2**) then do; IMP\_2 = **0.073** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B4059\_FB' and SRTH = **1**) then do; IMP\_2 = **1** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B4059\_FB' and SRTH = **2**) then do; IMP\_2 = **0.210** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B6000\_US' and SRTH = **1**) then do; IMP\_2 = **0.577** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B6000\_US' and SRTH = **2**) then do; IMP\_2 = **0.129** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B6000\_FB' and SRTH = **1**) then do; IMP\_2 = **0.590** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B6000\_FB' and SRTH = **2**) then do; IMP\_2 = **0.206** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M0619\_US' and SRTH = **1**) then do; IMP\_2 = **0.285** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M0619\_US' and SRTH = **2**) then do; IMP\_2 = **0.012** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M0619\_FB' and SRTH = **1**) then do; IMP\_2 = **0.406** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M0619\_FB' and SRTH = **2**) then do; IMP\_2 = **0.085** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end; else if (GROUPING = 'M2039\_US' and SRTH = **1**) then do; IMP\_2 = **0.415** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M2039\_US' and SRTH = **2**) then do; IMP\_2 = **0.030** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M2039\_FB' and SRTH = **1**) then do; IMP\_2 = **0.347** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M2039\_FB' and SRTH = **2**) then do; IMP\_2 = **0.159** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M4059\_US' and SRTH = **1**) then do; IMP\_2 = **0.075** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M4059\_US' and SRTH = **2**) then do; IMP\_2 = **0.015** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M4059\_FB' and SRTH = **1**) then do; IMP\_2 = **0.593** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M4059\_FB' and SRTH = **2**) then do; IMP\_2 = **0.227** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M6000\_US' and SRTH = **1**) then do; IMP\_2 = **0.381** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M6000\_US' and SRTH = **2**) then do; IMP\_2 = **0.113** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M6000\_FB' and SRTH = **1**) then do; IMP\_2 = **0.399** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'M6000\_FB' and SRTH = **2**) then do; IMP\_2 = **0.208** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W0619\_US' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W0619\_US' and SRTH = **2**) then do; IMP\_2 = **0.002** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W0619\_FB' and SRTH = **1**) then do; IMP\_2 = **0.453** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W0619\_FB' and SRTH = **2**) then do; IMP\_2 = **0.038** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W2039\_US' and SRTH = **1**) then do; IMP\_2 = **0.029** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W2039\_US' and SRTH = **2**) then do; IMP\_2 = **0.002** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W2039\_FB' and SRTH = **1**) then do; IMP\_2 = **0.402** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W2039\_FB' and SRTH = **2**) then do; IMP\_2 = **0.176** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W4059\_US' and SRTH = **1**) then do; IMP\_2 = **0.307** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W4059\_US' and SRTH = **2**) then do; IMP\_2 = **0.006** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W4059\_FB' and SRTH = **1**) then do; IMP\_2 = **0.367** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W4059\_FB' and SRTH = **2**) then do; IMP\_2 = **0.237** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W6000\_US' and SRTH = **1**) then do; IMP\_2 = **0.268** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W6000\_US' and SRTH = **2**) then do; IMP\_2 = **0.024** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W6000\_FB' and SRTH = **1**) then do; IMP\_2 = **0.271** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W6000\_FB' and SRTH = **2**) then do; IMP\_2 = **0.093** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

**run**;

**data** work.nh1112\_9338;

 set nhanes.nh1112;

 if RIDSTATR = **2** ; /\*to subset to the 9338 survey participants

 undergoing 2011-2012 NHANES exam\*/

 /\*but note that only those age 6+ eligible for TST

 --> interested in that subset of 7821 SPs\*/

/\* from TBX\_G data file in 2011-2012 NHANES

 • TBDRUIND - Induration in mm \*/

 if TBDRUIND = **0** then TST1 = **1**;

 else if **0** < TBDRUIND < **10** then TST1 = **2**;

 else if **10** le TBDRUIND < **77** then TST1 = **3**;

 else TST1 = **9**;

 if TST1 ne **9** then VALID\_TST = **1**; else VALID\_TST = **2**;

/\*\*\*reclassification of borderline TST results\*\*\*/

/\* from TB\_G data file in 2011-2012 NHANES

 • LBXTBIN - TB coded result (from QuantiFERON-TB Gold In Tube test) \*/

 if (LBXTBIN = **1** and TST1 = **2** and (**8** le TBDRUIND lt **10**)) then TST\_reclassify = **3**;

 else TST\_reclassify = TST1;

/\* from TBQ\_G data file in 2011-2012 NHANES

 • TBQ010 - Ever had TB/tuberculosis skin test

 • TBQ015a - Did you receive the skin test

 • TBQ015b - Did you receive the blood test

 • TBQ015c - Did you receive the tine test

 • TBQ022 - Told your skin test was positive for TB equiv is TBQ020 in 1999-2000

 • TBQ025 - Told your blood test was positive for TB

 • TBQ028 - Told your tine test was positive for TB

 • TBQ030 - Prescribed medicine for preventing TB

 • TBQ035 - Did you/SP complete this treatment?

 • TBQ040 - Ever told you had active TB

 • TBQ050 - Prescribed medicine for active TB

 • TBQ060 - Lived in household TB sick person \*/

 if TBQ040 = **1** then Hx = 'active TB';

 else if TBQ050 = **1** then Hx = 'active TB';

 /\*though again turns out unnecessary because they are a subset\*/

 else if TBQ022 = **1** then Hx = 'pos TST';

 else if TBQ030 = **1** then Hx = 'LTBI Tx';

 /\*again also unnecessary because they are a subset\*/

 else if TBQ025 = **1** then Hx = 'pos IGRA';

 else if TBQ028 = **1** then Hx = 'pos Tine';

 else if TBQ060 = **1** then Hx = 'household';

 else Hx = 'none';

if TBQ022 = **1** then testHx = 'TST pos'; /\*equiv is TBQ020 in 1999-2000\*/

 else if TBQ025 = **1** then testHx = 'IGRA pos'; /\*only relevant for 2011-2012\*/

 else if TBQ028 = **1** then testHx = 'TINE pos'; /\*only relevant for 2011-2012\*/

 else testHx = 'no pos';

/\*create new var SRTH = self-reported TB Hx\*/

 if Hx in ('LTBI Tx', 'active TB', 'pos IGRA', 'pos TST', 'pos Tine') then SRTH = **1**;

 else SRTH = **2**;

/\*from DEMO\_G data file in 2011-2012 NHANES

 • RIDAGEYR - Age in years at screening

 • RIDRETH3 - Race/Hispanic origin w/ NH Asian

 • DMDBORN4 - Country of birth \*/

 if RIDAGEYR > **5** then AGE6up = **1**; else AGE6up = **0**;

 if RIDAGEYR < **1** then AGEGP\_SUBD = **0**; /\*age < 1 yr\*/

 else if RIDAGEYR < **6** then AGEGP\_SUBD = **10**; /\*ages 1- 5\*/

 else if RIDAGEYR < **12** then AGEGP\_SUBD = **11**; /\*ages 6-11\*/

 else if RIDAGEYR < **16** then AGEGP\_SUBD = **12**; /\*ages 12-15\*/

 else if RIDAGEYR < **20** then AGEGP\_SUBD = **16**; /\*ages 16-19\*/

 else if RIDAGEYR < **30** then AGEGP\_SUBD = **20**; /\*ages 20-29\*/

 else if RIDAGEYR < **40** then AGEGP\_SUBD = **30**; /\*ages 30-39\*/

 else if RIDAGEYR < **50** then AGEGP\_SUBD = **40**; /\*ages 40-49\*/

 else if RIDAGEYR < **60** then AGEGP\_SUBD = **50**; /\*ages 50-59\*/

 else if RIDAGEYR < **70** then AGEGP\_SUBD = **60**; /\*ages 60-69\*/

 else if RIDAGEYR < **80** then AGEGP\_SUBD = **70**; /\*ages 70-79\*/

 else AGEGP\_SUBD = **80**; /\*age 80+ yrs\*/

if AGEGP\_SUBD in (**0**, **10**)then GROUPING = 'tooyoung';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and DMDBORN4 = **1** and RIDRETH3 = **4** ) then GROUPING = 'B0619\_US';

else if ( AGEGP\_SUBD in (**20**,**30**) and DMDBORN4 = **1** and RIDRETH3 = **4** ) then GROUPING = 'B2039\_US';

else if ( AGEGP\_SUBD in (**40**,**50**) and DMDBORN4 = **1** and RIDRETH3 = **4** ) then GROUPING = 'B4059\_US';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and DMDBORN4 = **1** and RIDRETH3 = **4** ) then GROUPING = 'B6000\_US';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and DMDBORN4 = **2** and RIDRETH3 = **4** ) then GROUPING = 'B0619\_FB';

else if ( AGEGP\_SUBD in (**20**,**30**) and DMDBORN4 = **2** and RIDRETH3 = **4** ) then GROUPING = 'B2039\_FB';

else if ( AGEGP\_SUBD in (**40**,**50**) and DMDBORN4 = **2** and RIDRETH3 = **4** ) then GROUPING = 'B4059\_FB';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and DMDBORN4 = **2** and RIDRETH3 = **4** ) then GROUPING = 'B6000\_FB';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and DMDBORN4 = **1** and (RIDRETH3 in (**1**, **2**)))then GROUPING = 'H0619\_US';

else if ( AGEGP\_SUBD in (**20**,**30**) and DMDBORN4 = **1** and (RIDRETH3 in (**1**, **2**) )) then GROUPING = 'H2039\_US';

else if ( AGEGP\_SUBD in (**40**,**50**) and DMDBORN4 = **1** and (RIDRETH3 in (**1**, **2**) )) then GROUPING = 'H4059\_US';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and DMDBORN4 =**1** and (RIDRETH3 in (**1**, **2**))) then GROUPING = 'H6000\_US';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and DMDBORN4 =**2** and (RIDRETH3 in (**1**, **2**))) then GROUPING = 'H0619\_FB';

else if ( AGEGP\_SUBD in (**20**,**30**) and DMDBORN4 = **2** and (RIDRETH3 in (**1**, **2**) )) then GROUPING = 'H2039\_FB';

else if ( AGEGP\_SUBD in (**40**,**50**) and DMDBORN4 = **2** and (RIDRETH3 in (**1**, **2**) )) then GROUPING = 'H4059\_FB';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and DMDBORN4 =**2** and (RIDRETH3 in (**1**, **2**))) then GROUPING = 'H6000\_FB';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and DMDBORN4 = **1** and RIDRETH3 = **6** ) then GROUPING = 'A0619\_US';

else if ( AGEGP\_SUBD in (**20**,**30**) and DMDBORN4 = **1** and RIDRETH3 = **6** ) then GROUPING = 'A2039\_US';

else if ( AGEGP\_SUBD in (**40**,**50**) and DMDBORN4 = **1** and RIDRETH3 = **6** ) then GROUPING = 'A4059\_US';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and DMDBORN4 = **1** and RIDRETH3 = **6** ) then GROUPING = 'A6000\_US';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and DMDBORN4 = **2** and RIDRETH3 = **6** ) then GROUPING = 'A0619\_FB';

else if ( AGEGP\_SUBD in (**20**,**30**) and DMDBORN4 = **2** and RIDRETH3 = **6** ) then GROUPING = 'A2039\_FB';

else if ( AGEGP\_SUBD in (**40**,**50**) and DMDBORN4 = **2** and RIDRETH3 = **6** ) then GROUPING = 'A4059\_FB';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and DMDBORN4 =**2** and RIDRETH3 = **6** ) then GROUPING = 'A6000\_FB';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and DMDBORN4 =**1** and (RIDRETH3 in (**3**, **7**))) then GROUPING = 'W0619\_US';

else if ( AGEGP\_SUBD in (**20**,**30**) and DMDBORN4 = **1** and (RIDRETH3 in (**3**, **7**))) then GROUPING = 'W2039\_US';

else if ( AGEGP\_SUBD in (**40**,**50**) and DMDBORN4 = **1** and (RIDRETH3 in (**3**, **7**))) then GROUPING = 'W4059\_US';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and DMDBORN4 =**1** and (RIDRETH3 in (**3**, **7**))) then GROUPING = 'W6000\_US';

else if ( AGEGP\_SUBD in (**11**,**12**,**16**) and DMDBORN4 =**2** and (RIDRETH3 in (**3**, **7**))) then GROUPING = 'W0619\_FB';

else if ( AGEGP\_SUBD in (**20**,**30**) and DMDBORN4 = **2** and (RIDRETH3 in (**3**, **7**))) then GROUPING = 'W2039\_FB';

else if ( AGEGP\_SUBD in (**40**,**50**) and DMDBORN4 = **2** and (RIDRETH3 in (**3**, **7**))) then GROUPING = 'W4059\_FB';

else if ( AGEGP\_SUBD in (**60**,**70**,**80**) and DMDBORN4 =**2** and (RIDRETH3 in (**3**, **7**))) then GROUPING = 'W6000\_FB';

else GROUPING = 'unclass'; /\* 2 unk origin Mex American and 3 unk origin oth Hisp\*/

/\*IMPUTATIONS for missing TST results:

 IMP\_2 (best estimate if MAR) - within the subgroup of profile participants who had the same

 (binary variable) SRTH / self-reported personal TB history

 IMP\_3 and IMP\_4 (extreme MNAR assumptions) IMP\_3 = all had positive instead of missing TST

 IMP\_4 = all had negative instead of missing TST \*/

if (TST\_reclassify = **3**) then do; IMP\_2 = **1** ; IMP\_3 = **1** ; IMP\_4 = **1** ; end;

else if (TST\_reclassify in (**1**,**2**)) then do; IMP\_2 = **0** ; IMP\_3 = **0** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B0619\_US' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B0619\_US' and SRTH = **2**) then do; IMP\_2 = **0.011** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B0619\_FB' and SRTH = **1**) then do; IMP\_2 = **1** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B0619\_FB' and SRTH = **2**) then do; IMP\_2 = **0.420** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B2039\_US' and SRTH = **1**) then do; IMP\_2 = **0.254** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B2039\_US' and SRTH = **2**) then do; IMP\_2 = **0.024** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B2039\_FB' and SRTH = **1**) then do; IMP\_2 = **0.599** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B2039\_FB' and SRTH = **2**) then do; IMP\_2 = **0.167** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B4059\_US' and SRTH = **1**) then do; IMP\_2 = **0.449** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B4059\_US' and SRTH = **2**) then do; IMP\_2 = **0.044** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B4059\_FB' and SRTH = **1**) then do; IMP\_2 = **0.866** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B4059\_FB' and SRTH = **2**) then do; IMP\_2 = **0.137** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B6000\_US' and SRTH = **1**) then do; IMP\_2 = **0.513** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B6000\_US' and SRTH = **2**) then do; IMP\_2 = **0.094** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B6000\_FB' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'B6000\_FB' and SRTH = **2**) then do; IMP\_2 = **0.383** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H0619\_US' and SRTH = **1**) then do; IMP\_2 = **0.098** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H0619\_US' and SRTH = **2**) then do; IMP\_2 = **0.005** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H0619\_FB' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H0619\_FB' and SRTH = **2**) then do; IMP\_2 = **0.077** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H2039\_US' and SRTH = **1**) then do; IMP\_2 = **0.536** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H2039\_US' and SRTH = **2**) then do; IMP\_2 = **0.026** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H2039\_FB' and SRTH = **1**) then do; IMP\_2 = **0.422** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H2039\_FB' and SRTH = **2**) then do; IMP\_2 = **0.148** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H4059\_US' and SRTH = **1**) then do; IMP\_2 = **1** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H4059\_US' and SRTH = **2**) then do; IMP\_2 = **0.028** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H4059\_FB' and SRTH = **1**) then do; IMP\_2 = **0.543** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H4059\_FB' and SRTH = **2**) then do; IMP\_2 = **0.250** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H6000\_US' and SRTH = **1**) then do; IMP\_2 = **0.413** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H6000\_US' and SRTH = **2**) then do; IMP\_2 = **0.099** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H6000\_FB' and SRTH = **1**) then do; IMP\_2 = **0.648** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'H6000\_FB' and SRTH = **2**) then do; IMP\_2 = **0.257** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A0619\_US' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A0619\_US' and SRTH = **2**) then do; IMP\_2 = **0.014** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A0619\_FB' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A0619\_FB' and SRTH = **2**) then do; IMP\_2 = **0.121** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A2039\_US' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A2039\_US' and SRTH = **2**) then do; IMP\_2 = **0.038** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A2039\_FB' and SRTH = **1**) then do; IMP\_2 = **0.643** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A2039\_FB' and SRTH = **2**) then do; IMP\_2 = **0.230** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A4059\_US' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A4059\_US' and SRTH = **2**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A4059\_FB' and SRTH = **1**) then do; IMP\_2 = **0.506** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A4059\_FB' and SRTH = **2**) then do; IMP\_2 = **0.351** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A6000\_US' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A6000\_US' and SRTH = **2**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A6000\_FB' and SRTH = **1**) then do; IMP\_2 = **0.459** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'A6000\_FB' and SRTH = **2**) then do; IMP\_2 = **0.262** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W0619\_US' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W0619\_US' and SRTH = **2**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W0619\_FB' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W0619\_FB' and SRTH = **2**) then do; IMP\_2 = **0.046** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W2039\_US' and SRTH = **1**) then do; IMP\_2 = **0.233** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W2039\_US' and SRTH = **2**) then do; IMP\_2 = **0.005** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W2039\_FB' and SRTH = **1**) then do; IMP\_2 = **1** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W2039\_FB' and SRTH = **2**) then do; IMP\_2 = **0.037** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W4059\_US' and SRTH = **1**) then do; IMP\_2 = **0.111** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W4059\_US' and SRTH = **2**) then do; IMP\_2 = **0.005** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W4059\_FB' and SRTH = **1**) then do; IMP\_2 = **0** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W4059\_FB' and SRTH = **2**) then do; IMP\_2 = **0.131** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W6000\_US' and SRTH = **1**) then do; IMP\_2 = **0.191** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W6000\_US' and SRTH = **2**) then do; IMP\_2 = **0.007** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W6000\_FB' and SRTH = **1**) then do; IMP\_2 = **0.366** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

else if (GROUPING = 'W6000\_FB' and SRTH = **2**) then do; IMP\_2 = **0.106** ; IMP\_3 = **1** ; IMP\_4 = **0** ; end;

**run**;

**proc** **freq** data=work.nh9900\_9282;

 tables age6up \* TST1 / norow nocol nopercent missing ; /\*7819 with TST results\*/

**run**;

**proc** **freq** data=work.nh1112\_9338;

 tables age6up \* TST1 / norow nocol nopercent missing ; /\*7821 with TST results\*/

 tables TST1\*TST\_reclassify / nopercent norow nocol missing;

 /\*resulted in 40 being reclassified as having pos TST\*/

**run**;

/\*\*\*\*conventional analyses with public-use data vars in SAS-callable SUDAAN\*\*\*\*/

**proc** **sort** data = work.nh9900\_9282; by SDMVSTRA SDMVPSU; **run**;

**proc** **sort** data = work.nh1112\_9338; by SDMVSTRA SDMVPSU; **run**;

/\*using the public-use TSTs\*/

 **proc** **descript** data=work.nh9900\_9282 design=wr ;

 subpopx AGE6UP = **1** and VALID\_TST = **1** ;

 nest SDMVSTRA SDMVPSU;

 weight wtmec2yr;

 catlevel **3** ;

 var TST1 ;

 print PERCENT LOWPCT UPPCT SEPERCENT / style=nchs;

 rtitle "conventional analysis: Positive TST results in US pop age 6+,
 1999-2000 - based only on those with valid TST results";

 **run**;

 **proc** **descript** data=work.nh1112\_9338 design=wr ;

 subpopx AGE6UP = **1** and VALID\_TST = **1** ;

 nest SDMVSTRA SDMVPSU;

 weight wtmec2yr;

 catlevel **3** ;

 var TST1 ;

 print PERCENT LOWPCT UPPCT SEPERCENT / style=nchs;

 rtitle "conventional analysis: Positive TST results in US pop age 6+,

 2011-2012 - based only on those with valid TST results";

 **run**;

/\*using the 40 reclassified TSTs for 2011-2012\*/

 **proc** **descript** data=work.nh1112\_9338 design=wr ;

 subpopx AGE6UP = **1** and VALID\_TST = **1** ;

 nest SDMVSTRA SDMVPSU;

 weight wtmec2yr;

 catlevel **3** ;

 var TST\_reclassify ;

 print PERCENT LOWPCT UPPCT SEPERCENT / style=nchs;

 rtitle "conventional analysis for 2011-2012 after reclassifying

 40 borderline TST results as positive";

 **run**;

/\*\*\* probabilistic bias analysis (better than simple deterministic reclassification) \*\*\*\*\*\*\*\*\*/

/\*\*\*\*\*\*for RECORD-LEVEL correction to potential misclassification\*\*\*\*\*\*\*/

/\*\*\* rationale, per Tim Lash bias analaysis course, lecture 10:

Record level data turns the Se and Sp into PPV and NPV and uses those values in Bernoulli trials to decide which individual to “correct”

Accounts for uncertainty in the bias parameters plus random error in who is reassigned \*\*\*/

/\*use an array to do this 30 times\*/

**data** work.reps\_9900;

 set work.nh9900\_9282;

 array TST\_rep[**30**] ;

 do i = **1** to **30**;

 if seed11 eq **.** then do seed11 = **403712**+SEQN; end;

 if TST1 in (**1**,**2**,**3**) then TST\_rep[i] = TST1+**5**; /\*so now 6-7 are neg, 8 is pos, and 9 still unkn\*/

 else if TST1 in (**9**) then

 call ranbin (seed11, **1**, (IMP\_2), TST\_rep[i]); /\*this should apply to the 1,693 examined age 6+ missing TST results in 2011-2012\*/

 if TST\_rep[i] = **1** then TST\_rep[i] = **8**;

 else if TST\_rep[i] in (**6**,**7**,**8**) then TST\_rep[i] = TST\_rep[i];

 else TST\_rep[i] = **6**;

 end;

 drop i;

**run**;

**proc** **freq** data = work.reps\_9900;

 tables TST1 \* (TST\_rep1--TST\_rep30) /norow nocol nopercent ;

/\*between 459 and 490 instead of 410 pos\*/

**run**;

/\*now make them go back to familiar where 3 = pos (now no missings)\*/

**data** work.rep01\_9900; set work.reps\_9900; TST8 = TST\_rep1 - **5**; rep = **01**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep02\_9900; set work.reps\_9900; TST8 = TST\_rep2 - **5**; rep = **02**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep03\_9900; set work.reps\_9900; TST8 = TST\_rep3 - **5**; rep = **03**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep04\_9900; set work.reps\_9900; TST8 = TST\_rep4 - **5**; rep = **04**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep05\_9900; set work.reps\_9900; TST8 = TST\_rep5 - **5**; rep = **05**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep06\_9900 ; set work.reps\_9900; TST8 = TST\_rep6 - **5**; rep = **06**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep07\_9900; set work.reps\_9900; TST8 = TST\_rep7 - **5**; rep = **07**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep08\_9900; set work.reps\_9900; TST8 = TST\_rep8 - **5**; rep = **08**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep09\_9900; set work.reps\_9900; TST8 = TST\_rep9 - **5**; rep = **09**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep10\_9900; set work.reps\_9900; TST8 = TST\_rep10 - **5**; rep = **10**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep11\_9900; set work.reps\_9900; TST8 = TST\_rep11 - **5**; rep = **11**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep12\_9900; set work.reps\_9900; TST8 = TST\_rep12 - **5**; rep = **12**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep13\_9900; set work.reps\_9900; TST8 = TST\_rep13 - **5**; rep = **13**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep14\_9900; set work.reps\_9900; TST8 = TST\_rep14 - **5**; rep = **14**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep15\_9900; set work.reps\_9900; TST8 = TST\_rep15 - **5**; rep = **15**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep16\_9900; set work.reps\_9900; TST8 = TST\_rep16 - **5**; rep = **16**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep17\_9900; set work.reps\_9900; TST8 = TST\_rep17 - **5**; rep = **17**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep18\_9900; set work.reps\_9900; TST8 = TST\_rep18 - **5**; rep = **18**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep19\_9900; set work.reps\_9900; TST8 = TST\_rep19 - **5**; rep = **19**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep20\_9900; set work.reps\_9900; TST8 = TST\_rep20 - **5**; rep = **20**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep21\_9900; set work.reps\_9900; TST8 = TST\_rep21 - **5**; rep = **21**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep22\_9900; set work.reps\_9900; TST8 = TST\_rep22 - **5**; rep = **22**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep23\_9900; set work.reps\_9900; TST8 = TST\_rep23 - **5**; rep = **23**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep24\_9900; set work.reps\_9900; TST8 = TST\_rep24 - **5**; rep = **24**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep25\_9900; set work.reps\_9900; TST8 = TST\_rep25 - **5**; rep = **25**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep26\_9900; set work.reps\_9900; TST8 = TST\_rep26 - **5**; rep = **26**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep27\_9900; set work.reps\_9900; TST8 = TST\_rep27 - **5**; rep = **27**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep28\_9900; set work.reps\_9900; TST8 = TST\_rep28 - **5**; rep = **28**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep29\_9900; set work.reps\_9900; TST8 = TST\_rep29 - **5**; rep = **29**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep30\_9900; set work.reps\_9900; TST8 = TST\_rep30 - **5**; rep = **30**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**proc** **sort** data = work.reps\_9900; by SDMVSTRA SDMVPSU; **run**;

**data** work.reps9900\_mini;

 set work.reps\_9900;

 TST8 = TST1;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ;

**run**;

**data** work.reps\_1112;

 set work.nh1112\_9338;

 array TST\_rep[**30**] ;

 do i = **1** to **30**;

 if seed11 eq **.** then do seed11 = **403712**+SEQN; end;

 if TST\_reclassify in (**1**,**2**,**3**) then TST\_rep[i] = TST\_reclassify + **5**; /\*so now 6-7 are neg, 8 is pos, and 9 still unkn\*/

 else if TST\_reclassify in (**9**) then

 call ranbin (seed11, **1**, (IMP\_2), TST\_rep[i]); /\*this should apply to the 1,693 examined age 6+ missing TST results in 2011-2012\*/

 if TST\_rep[i] = **1** then TST\_rep[i] = **8**;

 else if TST\_rep[i] in (**6**,**7**,**8**) then TST\_rep[i] = TST\_rep[i];

 else TST\_rep[i] = **6**;

 end;

 drop i;

**run**;

**proc** **freq** data = work.reps\_1112;

 tables TST1 \* (TST\_rep1--TST\_rep50) /norow nocol nopercent ;

/\*between 600 and 634 instead of 442 pos\*/

 tables TST\_reclassify \* (TST\_rep1--TST\_rep30) /norow nocol nopercent ; /\* instead of 482 pos\*/

**run**;

/\*now make them go back to familiar where 3 = pos (now no missings)\*/

**data** work.rep01\_1112; set work.reps\_1112; TST8 = TST\_rep1 - **5**; rep = **01**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep02\_1112; set work.reps\_1112; TST8 = TST\_rep2 - **5**; rep = **02**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep03\_1112; set work.reps\_1112; TST8 = TST\_rep3 - **5**; rep = **03**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep04\_1112; set work.reps\_1112; TST8 = TST\_rep4 - **5**; rep = **04**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep05\_1112; set work.reps\_1112; TST8 = TST\_rep5 - **5**; rep = **05**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep06\_1112; set work.reps\_1112; TST8 = TST\_rep6 - **5**; rep = **06**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep07\_1112; set work.reps\_1112; TST8 = TST\_rep7 - **5**; rep = **07**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep08\_1112; set work.reps\_1112; TST8 = TST\_rep8 - **5**; rep = **08**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep09\_1112; set work.reps\_1112; TST8 = TST\_rep9 - **5**; rep = **09**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep10\_1112; set work.reps\_1112; TST8 = TST\_rep10 - **5**; rep = **10**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep11\_1112; set work.reps\_1112; TST8 = TST\_rep11 - **5**; rep = **11**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep12\_1112; set work.reps\_1112; TST8 = TST\_rep12 - **5**; rep = **12**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep13\_1112; set work.reps\_1112; TST8 = TST\_rep13 - **5**; rep = **13**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep14\_1112; set work.reps\_1112; TST8 = TST\_rep14 - **5**; rep = **14**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep15\_1112; set work.reps\_1112; TST8 = TST\_rep15 - **5**; rep = **15**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep16\_1112; set work.reps\_1112; TST8 = TST\_rep16 - **5**; rep = **16**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep17\_1112; set work.reps\_1112; TST8 = TST\_rep17 - **5**; rep = **17**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep18\_1112; set work.reps\_1112; TST8 = TST\_rep18 - **5**; rep = **18**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep19\_1112; set work.reps\_1112; TST8 = TST\_rep19 - **5**; rep = **19**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep20\_1112; set work.reps\_1112; TST8 = TST\_rep20 - **5**; rep = **20**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep21\_1112; set work.reps\_1112; TST8 = TST\_rep21 - **5**; rep = **21**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep22\_1112; set work.reps\_1112; TST8 = TST\_rep22 - **5**; rep = **22**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep23\_1112; set work.reps\_1112; TST8 = TST\_rep23 - **5**; rep = **23**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep24\_1112; set work.reps\_1112; TST8 = TST\_rep24 - **5**; rep = **24**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep25\_1112; set work.reps\_1112; TST8 = TST\_rep25 - **5**; rep = **25**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep26\_1112; set work.reps\_1112; TST8 = TST\_rep26 - **5**; rep = **26**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep27\_1112; set work.reps\_1112; TST8 = TST\_rep27 - **5**; rep = **27**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep28\_1112; set work.reps\_1112; TST8 = TST\_rep28 - **5**; rep = **28**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep29\_1112; set work.reps\_1112; TST8 = TST\_rep29 - **5**; rep = **29**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**data** work.rep30\_1112; set work.reps\_1112; TST8 = TST\_rep30 - **5**; rep = **30**;

 SEQ = ((**100** + rep) \* **10000** ) + SEQN;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ; **run**;

**proc** **sort** data = work.reps\_1112; by SDMVSTRA SDMVPSU; **run**;

**data** work.reps1112\_mini;

 set work.reps\_1112;

 TST8 = TST\_reclassify;

 keep SEQN GROUPING AGE6UP DMDBORN4 VALID\_TST SDMVSTRA SDMVPSU wtmec2yr TST8 ;

**run**;

/\*redo pos TST prevalence estimates in SUDAAN using 30 imputed datasets for missing TST results\*/

**proc** **sort** data = work.reps9900\_mini; by SDMVSTRA SDMVPSU; **run**;

 **proc** **descript** data=work.reps9900\_mini design=wr ;

 subpopx AGE6UP = **1** ;

 nest SDMVSTRA SDMVPSU;

 weight wtmec2yr;

 catlevel **3** ;

 var TST8 ;

 print PERCENT LOWPCT UPPCT SEPERCENT / style=nchs;

rtitle "Positive TST results in US pop age 6+, 1999-2000,

using MAR to impute results for those without valid TST results";

 mi\_files rep01\_9900 rep02\_9900 rep03\_9900 rep04\_9900 rep05\_9900

rep06\_9900 rep07\_9900 rep08\_9900 rep09\_9900 rep10\_9900

 rep11\_9900 rep12\_9900 rep13\_9900 rep14\_9900 rep15\_9900

rep16\_9900 rep17\_9900 rep18\_9900 rep19\_9900 rep20\_9900

 rep21\_9900 rep22\_9900 rep23\_9900 rep24\_9900 rep25\_9900

rep26\_9900 rep27\_9900 rep28\_9900 rep29\_9900 rep30\_9900;

 **run**;

**proc** **sort** data = work.reps\_1112\_mini; by SDMVSTRA SDMVPSU; **run**;

 **proc** **descript** data=work.reps1112\_mini design=wr ;

 subpopx AGE6UP = **1** ;

 nest SDMVSTRA SDMVPSU;

 weight wtmec2yr;

 catlevel **3** ;

 var TST8 ;

 print PERCENT LOWPCT UPPCT SEPERCENT / style=nchs;

rtitle "Positive TST results in US pop age 6+, 2011-2012,

using MAR to impute results for those without valid TST results";

mi\_files rep01\_1112 rep02\_1112 rep03\_1112 rep04\_1112 rep05\_1112

rep06\_1112 rep07\_1112 rep08\_1112 rep09\_1112 rep10\_1112

 rep11\_1112 rep12\_1112 rep13\_1112 rep14\_1112 rep15\_1112

rep16\_1112 rep17\_1112 rep18\_1112 rep19\_1112 rep20\_1112

 rep21\_1112 rep22\_1112 rep23\_1112 rep24\_1112 rep25\_1112

rep26\_1112 rep27\_1112 rep28\_1112 rep29\_1112 rep30\_1112;

 **run**;