The variables FEV1_PRD, FEV1_LLN, FVC_PRD, and FVC_LLN were calculated using the following do statement:

```
data spi_der;
merge spi_der key dmq ant smq hhq;
by spid;

if gender="1" then do; *male;
     if race=1 then do; *non-hispanic white;
          FEV1_PRD =  0.5536
                          -0.01303*age
                          -0.000172*(age**2)
                          +0.00014098*(height**2);
          FEV1_LLN =  0.5536
                          -0.01303*age
                          -0.000172*(age**2)
                          +0.00011607*(height**2);
          FVC_PRD  = -0.1933
                          +0.00064*age
                          -0.000269*(age**2)
                          +0.00018642*(height**2);
          FVC_LLN  = -0.1933
                          +0.00064*age
                          -0.000269*(age**2)
                          +0.00015695*(height**2);
     end; else if race=2 then do; *non-hispanic black;
          FEV1_PRD =  0.3411
                          -0.02309*age
                          +0.00013194*(height**2);
          FEV1_LLN =  0.3411
                          -0.02309*age
                          +0.00010561*(height**2);
          FVC_PRD  = -0.1517
                          -0.01821*age
                          +0.00016643*(height**2);
          FVC_LLN  = -0.1517
                          -0.01821*age
                          +0.00013670*(height**2);
     end; else if race=3 then do; *hispanic;
          FEV1_PRD =  0.6306
                          -0.02928*age
                          +0.00015104*(height**2);
          FEV1_LLN =  0.6306
                          -0.02928*age
                          +0.00012670*(height**2);
          FVC_PRD  =  0.2376
                          -0.00891*age
                          -0.000182*(age**2)
                          +0.00017823*(height**2);
          FVC_LLN  =  0.2376
                          -0.00891*age
                          -0.000182*(age**2)
                          +0.00014947*(height**2);
     end; else do;
          FEV1_PRD =.;
          FEV1_LLN =.;
```

```sas
                    FVC_PRD  =.;
                    FVC_LLN  =.;
                end;
            end; else if gender="2" then do; *female;
                if race=1 then do; *non-hispanic white;
                    FEV1_PRD =  0.4333
                                        -0.00361*age
                                        -0.000194*(age**2)
                                        +0.00011496*(height**2);
                    FEV1_LLN =  0.4333
                                        -0.00361*age
                                        -0.000194*(age**2)
                                        +0.00009283*(height**2);
                    FVC_PRD  = -0.3560
                                        +0.01870*age
                                        -0.000382*(age**2)
                                        +0.00014815*(height**2);
                    FVC_LLN  = -0.3560
                                        +0.01870*age
                                        -0.000382*(age**2)
                                        +0.00012198*(height**2);
                end; else if race=2 then do; *non-hispanic black;
                    FEV1_PRD =  0.3433
                                        -0.01283*age
                                        -0.000097*(age**2)
                                        +0.00010846*(height**2);
                    FEV1_LLN =  0.3433
                                        -0.01283*age
                                        -0.000097*(age**2)
                                        +0.00008546*(height**2);
                    FVC_PRD  = -0.3039
                                        +0.00536*age
                                        -0.000265*(age**2)
                                        +0.00013606*(height**2);
                    FVC_LLN  = -0.3039
                                        +0.00536*age
                                        -0.000265*(age**2)
                                        +0.00010916*(height**2);
                end; else if race=3 then do; *hispanic;
                    FEV1_PRD =  0.4529
                                        -0.01178*age
                                        -0.000113*(age**2)
                                        +0.00012154*(height**2);
                    FEV1_LLN =  0.4529
                                        -0.01178*age
                                        -0.000113*(age**2)
                                        +0.00009890*(height**2);
                    FVC_PRD  =  0.1210
                                        +0.00307*age
                                        -0.000237*(age**2)
                                        +0.00014246*(height**2);
                    FVC_LLN  =  0.1210
                                        +0.00307*age
                                        -0.000237*(age**2)
                                        +0.00011570*(height**2);
                end; else do;
                    FEV1_PRD =.;
```

```
                    FEV1_LLN =.;
                    FVC_PRD  =.;
                    FVC_LLN  =.;
         end;
end;

run;
```