Supplemental Information

USING THE ROSNER PROGRAMS FOR THE PURPOSES OF IDENTIFYING STAGE 2 CHILDREN

A program for calculating blood pressure percentiles is available along with documentation at the Web site of Bernard Rosner, PhD at https://sites.google.com/a/channing.harvard.edu/bernardrosner/pediatric-blood-press/childhood-blood-pressure.

Analysis requires downloading 4 files from that site: quantreg_coef.txt, ht_zscore.txt, ht_zscore.inf.txt, and childhoodbppct.sas

Instructions also appear on the Web site as well as sample data.

Running the program requires a SAS license.

Rosner's program calculates a percentile for blood pressure given the age, height, and blood pressure level. So, if there is a child's sex, age, and percentile height, Rosner's macro will produce a percentile for blood pressure for that child. But the Rosner program does not produce a calculation for the 95th percentile for a child of a given height, age, and sex. Staging for the 2017 pediatric hypertension guidelines for "stage 2 hypertension" are based on the 95th percentile +12. This information on stage does not follow from the Rosner program. For that reason, we did the following revision.

Table 5 in the 2017 pediatric hypertension guidelines states:

If systolic blood pressure ≥(95th percentile + 12), then stage 2 candidate.

We can then subtract 12 from both sides of the inequality or equality sign to obtain:

If (SBP − 12) ≥95th percentile, then stage 2 candidate, where SBP equals systolic blood pressure. That is the only conditional statement that can be made by using the software available.

For that reason, we used the Rosner program by preprocessing the blood pressure data before attempting to identify those children with blood pressure levels that qualified for stage 2.

Once the stage 2 children were identified, we could and did pass the data through the Rosner program unmodified to obtain blood pressure percentiles for the classification into stage 1 hypertension, elevated, and normal blood pressure levels.

Users of the Rosner program who want to obtain staging information to apply to a large number of children will then either have to modify the Rosner code in SAS or perform this processing step and will then need to run the Rosner program twice across the data to classify all children.