

Blood pressure screening in the primary care setting:
Impact of the 2017 AAP Clinical Practice Guidelines
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Background: Hypertension is a silent disease that can have adverse effects originating in childhood and progress unnoticed into adulthood. Hypertension is common in childhood with a 3% prevalence based on the Fourth Report 2004 blood pressure (BP) guidelines. With the 2017 reference BP tables published in the Clinical Practice Guidelines (CPG) by the American Academy of Pediatrics (AAP), there are likely increases in the true prevalence of elevated BP and hypertension in the pediatric population.

Objective: To determine the impact of the 2017 AAP CPG on the prevalence of elevated BP in the primary care setting, how frequently initially abnormal BPs are repeated, and to explore patient characteristics associated with an initially elevated BP and having a repeated measurement.

Method: Practices from Lurie Community Connect and Lurie-owned primary care were invited to participate in this study. We conducted a retrospective chart review of well-child visits during 1/1/2017-12/31/2017 for children aged 3-17 across 14 participating practices. Height percentiles and z-scores were determined based on CDC references and used to calculate BMI percentile and z-scores. Systolic and diastolic BPs percentiles were estimated and classified based on the Fourth Report and 2017 AAP CPG reference tables. We used bivariate analyses followed by logistic regression models to identify patient characteristics associated with initial elevated BPs and repeated measurements of initial elevated BPs. This study was approved by the Institutional Review Board.

Results: Among 43,731 children (ages 3-17 years), elevated BP increased from 7.2% based on the Fourth Report to 11.2% based on the 2017 AAP CPG reference tables. By applying these more recent guidelines, 4.1% of previously classified normal BPs were reclassified as elevated; 42.4% of previously pre-hypertensive BPs were reclassified as Stage 1; and 64% of previously Stage 1 BPs were reclassified as Stage 2. Within our participating practices, 10.4% of initial BP classified as elevated were repeated at routine visits. Children that are older (13-17 years), males, overweight and obese were more likely to have an initial elevated blood pressure. Children who aged 7-12 years, overweight, obese, and with an initial BP $\geq 95^{\text{th}}$ percentile and higher were more likely to have an initially elevated BP repeated.

Conclusion: Overall, there was an increase in elevated and hypertensive BPs at well-child visits after applying the 2017 AAP CPG. At our participating practices, repeating initially abnormal BPs visits was low.