Hypertension affects nearly half of all adults living in the United States, with significant regional, sex, and sociodemographic differences. In 2020, hypertension was the primary cause of death in more than half a million individuals. In 2017, the American Academy of Pediatrics, in alignment with the American Heart Association and American College of Cardiology, released updated clinical practice guidelines (CPG) for the screening and management of high blood pressure (BP) in children. Application of the 2017 CPG to existing National Health and Nutrition Examination Survey data found an increase in the prevalence of hypertension based on reclassification per the updated BP definitions, categories, and stages among children aged 8 to 17 years. The study by Carroll and colleagues used data from AllianceChicago, a national Health Center Controlled Network of 74 federally qualified health centers, to primarily evaluate whether there was clinician adherence to the diagnosis and management of pediatric hypertension using the 2017 CPG, and secondarily, whether a clinical decision support (CDS) tool was used to calculate BP percentiles and inform clinical practice.

Interpretation and translation of clinical findings for clinical decision-making are challenging. This includes acquisition of BP, a measure that is recommended for all children beginning at age 3 years. Furthermore, diagnosis and management decisions for pediatric hypertension for children up to age 13 years are contingent on conversion of systolic and diastolic BP to percentiles integrating age, sex, and height. In busy clinical practice, this can be cumbersome, so it is not surprising that of the 23,334 children with elevated BP included in the study by Carroll and colleagues, only 38% had a corresponding International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10) code, and in those with hypertension during the study period, only 6% had a corresponding ICD-10 code, with variable associations of hypertension noted among those with sociodemographic differences. What is even more disappointing, but also not surprising, is that a CDS tool, available within the electronic health record that calculated BP percentiles and provided recommendations for rechecking the BP and adding the appropriate diagnosis, was used less than half of the time. Interestingly, despite the fact that clinicians did not document a hypertension ICD-10 diagnosis code or use the CDS tool in most patients, more than 95% of patients received some form of lifestyle counseling. This potentially highlights the burden of accurate documentation and coding of diagnoses, independent of management decisions.

CDS tools are intended to promote improved care, and while they are widely considered beneficial across care settings, only small to moderate improvements in care have been demonstrated with their use. Much of the lack of success of CDS tools has been related to their poor uptake for a variety of reasons, including time constraints, lack of confidence or knowledge in the tool, workflow disruption, and perceptions of loss of autonomy. CDS tools vary from diagnostic alerts to those with more nuanced management decision support, and the results may differ based on the type of tool. A 2020 review on the use of CDS for the diagnosis and management of hypertension from 2016 to 2019 included 3 pediatric studies. One of the studies that included diagnostic support found that elevated BP recognition increased from 4.9% to 16.6%. However, another study with both diagnostic support and guideline-based options for hypertension diagnosis and management found that recognition improved from 4.2% to 28.2%. Interestingly, while these tools are associated with improved recognition of elevated BP and hypertension, the overall numbers remain low. A similar finding was reported in the study by Carroll and colleagues, in which there was greater adherence to a hypertension diagnosis code when the CDS tool was used, although the frequency of
adherence was still only approximately 50%, compared with 27% in those for whom the tool was not used.

An interesting finding in the study by Carroll et al4 was that medications were more often prescribed by clinicians in suburban and rural settings, while referrals to a subspecialty care were more likely in an urban setting. While on the surface, this may appear to be related to increased comfort and familiarity with prescribing, it is possible that this has more to do with reduced access to subspecialty care in suburban and rural settings. In a 2023 survey of 72 primary care practitioners in the AllianceChicago Network, of whom more than two-thirds were from Illinois, most reported lack of comfort and familiarity with prescribing antihypertensive medications, and three-quarters preferred to refer these children to subspecialists. 6 Unfortunately, this survey study6 did not delineate whether the survey respondents were in urban, suburban, or rural settings. Based on the study by Carroll et al,4 we speculate that most of the respondents were in urban areas, given the increased rate of prescribing reported in the suburban and rural settings. In the current era, with the changing landscape of health care brought about by the COVID-19 pandemic, telehealth visits have become part of routine clinic operations. Given this, access to subspecialty consultation should, in theory, be easier. However, ongoing disparities in race and ethnicity, insurance status, and income level, along with persistently long waiting times for subspecialty pediatric care continue to make access challenging.

The lingering question remains if we ought to be concerned about the lack of adherence to CPG for diagnosis and management of pediatric hypertension. Previously, there was an absence of data that treating childhood hypertension reduced adverse health outcomes associated with hypertension in adults, but there is now evidence that elevated childhood BP is associated with target organ damage (changes in carotid intima-media thickness and left ventricular hypertrophy) in youth and adulthood. 7 Adults with a history of elevated BP in childhood but that normalized do not have a significant increase in carotid intima-media thickness, supporting the importance of treating hypertension in children to reduce the burden of cardiovascular disease in adulthood. 7 The findings by Carroll and colleagues4 highlight that we have to do better with adherence to CPG to identify the true burden of disease, but we also have to design better CDS tools that integrate diagnostic and targeted management support, without increasing alert fatigue.


