You Can’t Treat a Problem if You Don’t Recognize It

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In 2004, The Fourth Report on the Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents was released by the National Institutes of Health with the intention of providing a clear set of guidelines to help clinicians identify and treat childhood hypertension. Despite the increased attention paid to childhood hypertension since then, most children and adolescents with elevated blood pressure (BP) still go unrecognized and undiagnosed during clinical encounters. There are likely many contributing factors that lead to the underrecognition of pediatric hypertension, but the fact that clinicians providing care to children and adolescents do not have a simple, single BP value to reference creates significant complexity for what should be a relatively straightforward problem.

Various approaches to this problem have been proposed, ranging from creation of a simplified table of BP values to automated display of BP percentiles within the electronic health record. Most recently, in the American Academy of Pediatrics’ (AAP) 2017 “Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents,” a simplified table was included in which only age and sex are taken into consideration for use in screening children and adolescents for elevated BP readings. However, these simplified tools do not definitively identify hypertension. Clinicians must still use the full BP tables in the 2017 Clinical Practice Guideline to accurately define abnormal BP in pediatric patients.

Clinical decision support (CDS), a key driver for the development and adoption of health care information technology, has great potential to help increase the recognition and treatment of children with elevated BP. CDS encompasses a variety of tools and methods designed to improve the quality of care, increase efficiency, and ultimately reduce medical errors. In previous studies, researchers looking at CDS tools for BP have focused on providing clinicians with access to stand-alone or EMR-integrated BP percentile calculators. Although these tools frequently lead to increased rates of hypertension recognition, even with their use, the rates of recognition are still well below acceptable levels.

These studies reveal that CDS tools are not a panacea and need to be thoughtfully developed and deployed to support high-quality clinical decision-making by all members of the health care team. The “CDS Five Rights” framework provides a series of guiding principles to help ensure a CDS tool reaches its maximum potential. The Five Rights state that a CDS tool must provide the following: (1) the right information, (2) to the right people, (3) through the right channels, (4) in the right intervention formats, and (5) at the right points in the workflow. Ultimately, a CDS intervention needs to be interpretable, useable, and actionable for its intended recipient.

The study by Kharbanda et al in this issue of Pediatrics explores how a CDS tool embedded within a clinic’s electronic health record might increase the rate of hypertension recognition...
and management. The TeenBP CDS developed by Kharbanda et al. is the most comprehensive and well-integrated pediatric BP CDS described to date. By applying the CDS Five Rights, the authors have developed a well-thought-out and effective CDS tool that more than doubled the rate of recognition compared with standard practice. Yet 45% of patients with either elevated BP or hypertension still went unrecognized by clinicians over the 2-year study period. This highlights the important message that even well-designed technology cannot solve all process-related challenges.

Additionally, although CDS tools have demonstrated some benefit and should continue to be part of the solution, we need to consider additional strategies to overcome existing gaps in the recognition of hypertension. For example, CDS systems should also directly target patients and families. After-clinic visit summaries provided to patients and caregivers should include the BP readings from the visit, their corresponding percentile, and most importantly a simple notation designating the BP as normal or high. To encourage this, tools such as the AAP Bright Futures Family Resource Tool and Resource Kit could be modified to include these important details. This simple step would directly engage additional stakeholders, bringing additional attention to the issue and supporting a collaborative approach to hypertension recognition.

The bottom line is that childhood hypertension is common and has important long-term health consequences. Recognition of abnormal BP in children and adolescents is only the first step toward prevention of adult cardiovascular disease. Although the case has been made that recognizing and treating high BP in childhood may not directly prevent adverse cardiovascular events, abnormal childhood BP is widely recognized as an important cardiovascular risk factor that should not be overlooked. Unfortunately, many physicians do not even measure BP unless hypertension is suspected or risk factors are present, and even if it is measured, they do not use reference BP tables. Although technology could help with the biases associated with hypertension recognition, it cannot help if the BP is not even measured in the first place. Hopefully, publication of the new AAP Clinical Practice Guideline and further development of CDS tools will help practitioners better address this problem.

**ABBREVIATIONS**

AAP: American Academy of Pediatrics  
BP: blood pressure  
CDS: clinical decision support

**REFERENCES**


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