

# Study examines use of diagnostic tests in adolescents with hypertension

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A study of adolescents with hypertension enrolled in the Michigan Medicaid program suggests that guideline-recommended diagnostic tests – echocardiograms and renal ultrasonography – were poorly used, according to a report published Online First by *Archives of Pediatrics & Adolescent Medicine*.

[Hypertension](#) is a growing problem for adolescents because of the association between obesity and hypertension. Current pediatric guidelines recommend laboratory tests and renal ultrasonography for all pediatric patients with hypertension to rule out renal (kidney) disease. The guidelines also recommend echocardiograms to assess target organ damage. But little is known about echocardiogram use among adolescents in comparison with other recommended diagnostic tests (renal ultrasonography) and nonrecommended, but more readily available tests, such as electrocardiograms (EKGs), according to the study background.

Esther Y. Yoon, M.D., M.P.H., and colleagues of the University of Michigan, Ann Arbor, examined echocardiogram use in adolescents and compared it with EKG and renal ultrasonography use in an analysis of administrative claims data from the Michigan [Medicaid program](#) from 2003 to 2008.

There were 951 adolescents with "essential" hypertension (i.e., the cause is unknown) who had antihypertensive pharmacy claims: 24 percent (226) had echocardiograms; 22 percent (207) had renal ultrasonography;

and 50 percent (478) had EKGs, the results indicate.

"Our study describes for the first time, to our knowledge, equally low levels of obtaining echocardiograms and renal ultrasonography, which are recommended by national hypertension guidelines, by adolescents with essential hypertension," the authors note. "In contrast, we found that one-half of adolescents with essential hypertension had at least one EKG during the study period, a diagnostic test that is not recommended by pediatric hypertension guidelines but one that is recommended for adults with hypertension."

Boys, younger adolescents, those who had EKGs and those who had renal ultrasonography were more likely to receive echocardiograms compared with girls, older adolescents, and those who did not have EKGs or renal ultrasonography.

The authors suggest that the patterns of EKG and echocardiogram use in their study raises questions "about the level of familiarity, awareness or agreement with pediatric hypertension guideline recommendations and the rationale behind these recommendations."

"The decision and choice of [diagnostic tests](#) to evaluate for target organ damage in [adolescents](#) with essential hypertension warrant further study to understand the underlying rationale for those decisions and to determine treatment effectiveness," the researchers conclude.

In an editorial, Sarah D. de Ferranti, M.D., M.P.H., of Boston Children's Hospital, and Matthew W. Gillman, M.D., S.M., of Harvard Medical School, Boston, write: "The answers to the many questions raised here are unclear, pointing to the need for more information about the extent to which the BP [blood pressure] guidelines overall, and recommended diagnostic testing in particular, are implemented."

"It is important to get these answers," they continue.

"Future revision of the [guidelines](#) will require not only updating the evidence base for what should be done in ideal circumstances, but also what can be done in the real world given the range of possible health care provider, patient and payor facilitators and barriers to implementation," they conclude.

**More information:**

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