2017 American Academy of Pediatrics updated definitions for pediatric blood pressure categories

	For children aged 1 to 13 years	For children aged ≥13 years
Normal BP	Systolic and diastolic BP <90th percentile	Systolic BP <120 and diastolic BP <80 mmHg
Elevated BP	Systolic and diastolic BP ≥90th percentile to <95th percentile, or 120/80 mmHg to <95th percentile (whichever is lower)	Systolic BP 120 to 129 and diastolic BP <80 mmHg
Stage 1 HTN	Systolic and diastolic BP ≥95th percentile to <95th percentile + 12 mmHg, or 130/80 to 139/89 mmHg (whichever is lower)	130/80 to 139/89 mmHg
Stage 2 HTN	Systolic and diastolic BP ≥95th percentile + 12 mmHg, or ≥140/90 mmHg (whichever is lower)	≥140/90 mmHg

BP: blood pressure; HTN: hypertension.

Flynn JT, Kaelber DC, Baker –Smith CM et al. Clinical practice guideline for screening and management of high blood pressure in children and adolescents. Pediatrics 2017; 140 (3):e20171905

Screening BP values requiring further evaluation

Age (y)	BP mmHg			
	Boys		Girls	
	Systolic	Diastolic	Systolic	Diastolic
1	98	52	98	54
2	100	55	101	58
3	101	58	102	60
4	102	60	103	62
5	103	63	104	64
6	105	66	105	67
7	106	68	106	68
8	107	69	107	69
9	107	70	108	71
10	108	72	109	72
11	110	74	111	74
12	113	75	114	75
≥ 13	120	80	120	80

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Screening Tests and Relevant Populations

Patient Population	Screening Tests
All patients	Urinalysis
	Chemistry panel, including electrolytes, blood urea nitrogen, and creatinine
	Lipid profile (fasting or nonfasting to include high-density lipoproteins and total cholesterol)
	Renal ultrasonography in those <6 y of age or those with abnormal urinalysis or renal function
In the obese (BMI >95th percentile) child or adolescent, in addition to the above	Hemoglobin A1c (accepted screen for diabetes)
	Aspartate transaminase and alanine transaminase (screen for fatty liver)
	Fasting lipid panel (screen for dyslipidemia)
Optional tests to be obtained on the basis of history, physical examination, and initial studies	Fasting serum glucose for those at high risk for diabetes mellitus
	Thyroid-stimulating hormone
	Drug screen
	Sleep study (if loud snoring, daytime sleepiness, or reported history of apnea)
	Complete blood count, especially in those with growth delay or abnormal renal function

* Adapted from Wiesen J, Adkins M, Fortune S, et al. Evaluation of pediatric patients with mild-to-moderate hypertension: yield of diagnostic testing. *Pediatrics*. 2008;122(5). Available at: www.pediatrics.org/cgi/content/full/122/5/e988.

Distinguishing clinical features between primary (essential) and secondary pediatric hypertension

Clinical features	Primary HTN	Secondary HTN
Age:		
Prepubertal		Secondary HTN is more likely in younger children, especially those less than six years of age.
Postpubertal	Older children and adolescents are more likely to have primary HTN.	
Diastolic HTN*		Diastolic HTN is more likely to be associated with secondary HTN.
Nocturnal HTN*		Nocturnal HTN is more likely to be associated with secondary HTN.
Overweight/obesity	Overweight or obese children/adolescents are more likely to have primary HTN.	
Family history of HTN	Children with a positive family history of primary HTN are more likely to have primary HTN.	Family history may be positive in some cases of secondary HTN due to a monogenic cause (eg, autosomal dominant polycystic kidney disease).
Symptoms of underlying disorder	Patients with primary HTN are typically asymptomatic.	Patients with secondary HTN often have other symptoms related to the underlying cause (eg, headache, sweating, and tachycardia due to catecholamine excess in patients with pheochromocytoma).

HTN: hypertension; ABPM: ambulatory blood pressure monitoring.
* Nocturnal and diastolic hypertension are usually detected by ABPM.

Management of the Obese Child with Hypertension

1. DASH approach(Fruits, vegetables ,low fat milk products, whole grain, fish, poultry, nuts) and low salt diet(3.1g/day in 3-4 yrs; 3.8g/day in older
2. Exercise (40minutes vigorous 3-5 days/weeks improve SBP by average 6.6 mmHg)
3. Weight reduction (1mmHg fall for 1 kg reduction)
4. Stress reduction (breathing awareness meditation, yoga)

Joseph T. Flynn et al .AAP guidelines on clinical management of hypertension in children & adolescents Aug 2017