

# Blood Pressure

Definition: Pressure of blood in arteries produced by contraction of heart muscle

- Systolic - Measured after heart contracts
- Diastolic - Measured before heart contracts
- Sphygmomanometer - Blood pressure measuring device



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National High Blood Pressure Education Program



# Primary Hypertension & Evaluation for Co-Morbidities

- Primary hypertension is identifiable in children, adolescents & adults.
- Hypertension and pre-hypertension are significant health issues in the young due to the marked increase in the prevalence of overweight children.
- The evaluation of hypertensive children should include assessment for additional risk factors.

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# Measurement of Blood Pressure in Children

- Children over 3 years old should have their BP measured
- Auscultation (measured by stethoscope) is the preferred method of BP measurement
- Correct measurement requires a cuff that is appropriate to the size of the child's upper arm
- Elevated BP must be confirmed on repeated measurement

*(<https://solutions.aap.org/DocumentLibrary/pcowebinars/2017%20Hypertension%20Webinar.pdf>)*



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# Conditions Under Which Children Under 3 Years Old Should Have BP Measured

- History of prematurity, very low birth weight, or other neonatal complication requiring intensive care
- Congenital heart disease
- Recurrent urinary tract infections
- Known renal disease or urologic malformations
- Family history of congenital renal or cardiac disease
- Solid organ transplant
- Malignancy or bone marrow transplant
- Treatment with drugs known to raise BP
- Other systemic illnesses associated with hypertension
- Evidence of elevated intracranial pressure



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# Pediatric Blood Pressures

Normal Blood Pressure by Age (mm Hg)			
Reference: PALS Guidelines, 2015			
Age	Systolic Pressure	Diastolic Pressure	Systolic Hypotension
Birth (12 h, <1000 g)	39-59	16-36	<40-50
Birth (12 h, 3 kg)	60-76	31-45	<50
Neonate (96 h)	67-84	35-53	<60
Infant (1-12 mo)	72-104	37-56	<70
Toddler (1-2 y)	86-106	42-63	<70 + (age in years x 2)
Preschooler (3-5 y)	89-112	46-72	<70 + (age in years x 2)
School-age (6-9 y)	97-115	57-76	<70 + (age in years x 2)
Preadolescent (10-11 y)	102-120	61-80	<90
Adolescent (12-15 y)	110-131	64-83	<90

Source: <http://www.pedscases.com/pediatric-vital-signs-reference-chart>



# Measurement of Blood Pressure in Adults

- The number of Americans who have high blood pressure has increased dramatically
- nearly 1,000 people die each day in the United States as a result of high blood pressure-related illnesses.
- The latest data show that nearly 1 in 3 American adults—approximately 70 million—have high blood pressure. About half of those with high blood pressure don't have it under control, even though many have insurance, are being treated with medicine, and have seen a doctor at least twice in the past year.



# Adult Blood Pressures

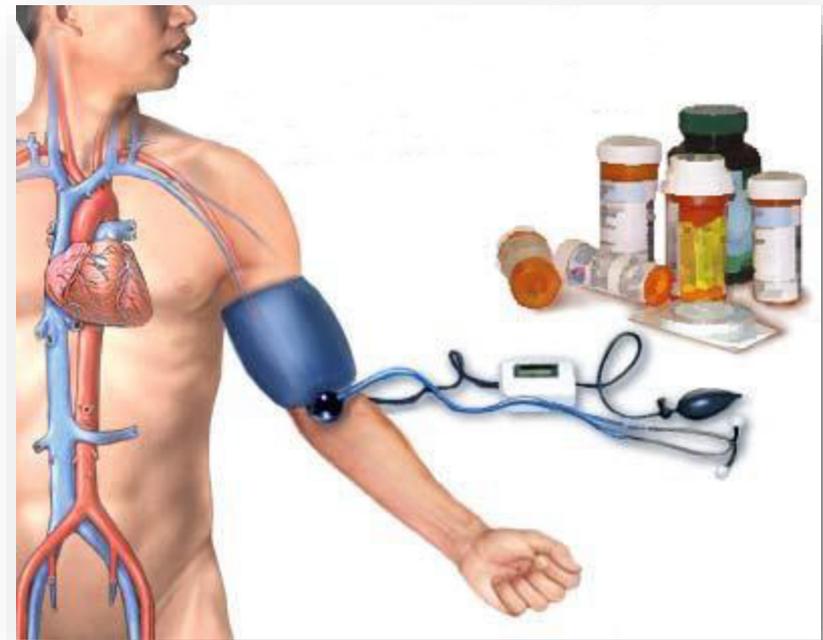
BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
<u>HYPERTENSIVE CRISIS</u> (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

Source: American Health Association



# Treatment Plan for Elevated Blood Pressure

- Repeat measurement
- Referral
- Cardiac Work-up
- Lifestyle changes
- Medication treatment



# Therapeutic Lifestyle Changes

## Stage of Hypertension

## Recommended Lifestyle Change

Normal

Encourage healthy diet, sleep, and physical activity.

Prehypertension

Recommend weight management counseling if overweight; introduce physical activity and diet management.

Stage 1 hypertension

Recommend weight management counseling if overweight; introduce physical activity and diet management.

Stage 2 hypertension

Recommend weight management counseling if overweight; introduce physical activity and diet management.

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