Assess for the presence of risk factors of primary HTN:

Exact etiology unknown, absence of secondary causes and presence of risk factors:
- Increased incidence with age, black race, positive family history
- Obesity
- Sedentary lifestyle
- Tobacco use
- Too much sodium/too little potassium and Vitamin D
- Too much stress
- Excessive alcohol intake
- Chronic medical conditions such as CKD and DM

Source: [http://www.mayoclinic.com/health/high-blood-pressure/DS00100/DSECTION=risk%2Dfactors](http://www.mayoclinic.com/health/high-blood-pressure/DS00100/DSECTION=risk%2Dfactors)

Assess for the presence of risk factors of secondary HTN:

- Renal disorders: Renal parenchymal disease, Polycystic kidney disease, Urinary tract obstruction, Renin-producing tumor, Renovascular hypertension
- Vascular: Coarctation of aorta, Vasculitis, Collagen vascular disease
- Endocrine: Oral contraceptives, Primary aldosteronism, Cushing syndrome, Pheochromocytoma, adrenal hyperplasia, Hyperthyroidism and hypothyroidism, Hypercalcemia, Hyperparathyroidism, Acromegaly
- Neurogenic: Brain tumor, Intracranial hypertension
- Sleep apnea
- Pregnancy-induced hypertension
- Drugs and toxins: Alcohol, Cocaine, Cyclosporine, Erythropoietin, Adrenergic medications

Source: [http://www.emedicine.com/med/TOPIC1106.HTM#section~Clinical](http://www.emedicine.com/med/TOPIC1106.HTM#section~Clinical)

Are Risk Factors Present?

YES

NO

Blood Pressure Screening/ Diagnostic Workup to exclude secondary hypertension

Monitor for presence of signs/ symptoms:
- *Early disease is asymptomatic.* It is diagnosed with elevated blood pressure, properly measured, has been documented on at least 3 separate occasions (based on the average of 2 or more readings taken at each of 2 or more visits after initial screening)
- *Client may present with Target organ damage:* Metabolic syndrome, atherosclerosis, heart attack, stroke, PAD (peripheral arterial ischemia or aneurysm), heart failure, hypertensive nephropathy

Are positive findings present?

Unstable?

Newly diagnosed?

Follow collaborative plan of care for decreased cardiac output, hypertensive emergency, nephropathy and retinopathy

See plan of care for atherosclerosis and arterial ischemia

Initiate client education for Health Seeking Behaviors to identify:
- Maintain ideal body weight and limit foods high in fat and all trans fat
- Eat a diet low in sodium, rich in potassium and Vit D
- Do not smoke or drink alcohol
- Exercise aerobically on most days of the week
- Explain that Hypertension has no symptoms in early disease and should be evaluated at office visits to ensure that it is less than 120/80
- Teach s/s of known risk factors and secondary causes to report
- Encourage periodic BP screening at health care setting
- Encourage management of chronic diseases that can lead to hypertension
- Explain that hypertension can lead to complications of target organ damage & explain s/s to report

See plan of care for a Risk for Ineffective Therapeutic Regimen management: using [JNC 7 Physician Reference Card](http://www.emedicine.com/med/TOPIC1106.HTM#section~Clinical)
PC: Decreased cardiac output

Outcomes/Benchmarks:
No weight gain
140>SBP>100, 100>HR>60
Absence of s/s of fluid overload; dyspnea (DOE), chest pain, palpitation and edema
Urinary output > 30 ml/hr

Are s/s of fluid overload present?
DOE, chest pain, palpitations, and edema
Crackles on auscultation, presence of S3, change in urine output

YES

Initiate collaborative plan of care:
PC: Decreased cardiac output

NO

Initiate plan of care to reduce ineffective therapeutic regimen:
Limit sodium to less than 2/4 grams per day
Ensure adequate hydration but avoid over-hydration
Weigh yourself daily and report weight gain > 2-3 lbs to your physician
Take antihypertensive therapy as prescribed
Limit daily alcohol intake; women <+1 drink, men <=2 drinks per day
Maintain ideal body weight
Exercise aerobically for 30 minutes on most days of the week
Follow DASH diet
Report worsening dyspnea, orthopnea, fatigue
Expect to participate in periodic physical examinations of blood pressure and cardiac function
Teach s/s of heart failure to report to MD

PC: Decreased cardiac output

ASSESS s/s of Decreased cardiac output
Weight gain, edema, JVD, ascites
DOE, chest pain, fatigue, confusion, palpitations
Nocturia, Decreased daytime urine output
Identify High risk populations
   Recent psychological or physiologic stressor
   Non tolerance or non adherence to prescribed antihypertensive therapy
   Weight gain
   Excess fluid or sodium intake

DO
Initiate fluid balance management
Position HOB elevated
Apply O2 therapy and titrate for PO > 90-95%
Establish IV access
Administer prescribed antihypertensive therapy and monitor effectiveness
   if hypertension persists refractory to therapy
   follow plan of care for hypertensive emergency
Implement sodium and fluid restriction as prescribed

MONITOR for s/s Decreased cardiac output
   Initiate pulse oximetry and perform ABGs for P/O < 90-93% as ordered
   Monitor for hypertension, tachycardia, tachypnea
   Apply cardiac monitor to identify dysrhythmias
   Perform baseline daily weight and monitor I/O
   Monitor chest Xray results to identify pulmonary edema
   If present follow plan of care for pulmonary edema/cardiogenic shock
   Monitor for BMP and CBC for electrolyte disturbance and hematologic anomaly as contributing factors
   Monitor serum BNP levels
   Monitor echocardiogram results to evaluate cardiac function

PC: Decreased cardiac output

CALL
   Monitor for cardiopulmonary compromise, hemodynamic instability and s/s of shock
   If present, perform ABCs initiate airway/ventilation management, sock management anc call ready response team and MD

Susan McCabe revised 10/1/08
**PC: Hypertensive emergency**
severe HTN with acute impairment of an organ system (e.g., central nervous system [CNS], cardiovascular, renal).

**Outcomes/Benchmarks:**
140>SBP>100
Alert and oriented X 3, no focal neurological deficits, no retinal hemorrhages, exudates, or papilledema
No crackles, chest pain, DOE, JVD, edema, Urine output > 30 ml/hr, tearing back pain from aortic dissection

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**Is the client experiencing:**
Acute hypertension with s/s of target organ damage

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**Implement plan of care for decreased tissue perfusion:**
Follow RITRM for decreased cardiac output
Teach client plan of care to avoid target organ damage
Reduce atherosclerotic risk factors
Encourage periodic fundoscopic exam, evaluation for microalbumin
Teach s/s of target organ damage to report

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**PC: Hypertensive emergency**

<table>
<thead>
<tr>
<th>ASSESS s/s of hypertensive emergency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severely elevated blood pressure with signs &amp; symptoms of target organ damage</td>
</tr>
<tr>
<td>Altered mental state, focal neurological deficits, presence of retinal hemorrhages, exudates, or papilledema</td>
</tr>
<tr>
<td>Presence of crackles, JVD, edema, myocardial ischemia acute renal failure</td>
</tr>
</tbody>
</table>

**Identify High risk populations**
Recent psychological or physiologic stressor
Non tolerance or non adherence to prescribed antihypertensive therapy
Weight gain, Excess fluid or sodium intake

**MONITOR for s/s hypertensive emergency**
Initiate noninvasive hemodynamic monitoring for tachycardia, dysrhythmia, hypertension and tachypnea
Perform pulse oximetry and cardiac monitoring
Perform lab diagnostics to identify TOD; chest x-ray, 12 lead EKG, BNP, cardiac enzymes, CT head chest and abdomen, urinalysis, electrolytes, CBC
Initiate I/O and daily weight

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**PC: Hypertensive emergency**

<table>
<thead>
<tr>
<th>DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease environmental stimuli</td>
</tr>
<tr>
<td>Position client HOB elevated</td>
</tr>
<tr>
<td>Apply oxygen therapy and titrate for PO&gt; 90-95%</td>
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<tr>
<td>Initiate IV access</td>
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<tr>
<td>Assist in insertion of hemodynamic monitoring equipment if indicated</td>
</tr>
<tr>
<td>Administer IV vasodilators, alpha/ beta-blockers, &amp; diuretics according to protocol to slowly lower blood pressure according to effect on MAP</td>
</tr>
<tr>
<td>Rapid lowering ca decreased target organ tissue perfusion</td>
</tr>
<tr>
<td>Provide supportive care for target organ damage</td>
</tr>
</tbody>
</table>

**CALL**
Monitor for complication of refractory hyper/hypotension, hemodynamic instability, worsening target organ damage
Perform ABCs, IV access and supportive care
Call ready response team and MD

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Susan McCabe revised 10/1/08