Systemic hypertension is defined as a sustained increase in systolic blood pressure (SBP) and is categorized as idiopathic, secondary, or situational.

**Idiopathic Hypertension**
- Persistent pathological hypertension in the absence of any identifiable underlying causes
- Accounts for approximately 13%-20% of cases in cats
- Need to rule out underlying conditions
  - Increased BP may induce polyuria (pressure diuresis), producing a low urine specific gravity (USG) <1.030, making it difficult to rule out kidney disease as an underlying cause
  - Approximately 12% of nonazotemic, nonhyperthyroid cats were hypertensive in one study
  - In another study, 7% of 133 apparently healthy, initially normotensive cats >9 years developed idiopathic hypertension

**Secondary Hypertension**
- Persistent pathological hypertension concurrent with a disease or condition known to cause hypertension OR hypertension associated with the administration of a therapeutic agent or ingestion of a toxic substance known to cause increased BP
- Hypertension may persist even after effective treatment of the primary condition is initiated
- If primary condition is resolved by therapeutic intervention, institute serial follow-up evaluations
- Cats often have more than one condition, so complete evaluation for other causes is necessary
- **Chronic Kidney Disease (CKD)**
  - Most common condition associated with hypertension
  - Azotemia has been reported in up to 75% of hypertensive cats
  - Between 19%-65% of cats with CKD have been found to be hypertensive
  - Prevalence and severity of hypertension does not appear to be related to severity of CKD
  - Cats with congenital kidney insufficiency may have normal serum creatinine and BUN levels but decreased USG
  - Exact pathogenesis is not completely understood
- **Hyperthyroidism**
  - Hypertension has been documented in 10%-23% of cats with hyperthyroidism at the time of diagnosis
  - Not uncommon for hyperthyroid cats to have concurrent CKD
  - Approximately 25% of hyperthyroid cats normotensive at diagnosis become hypertensive after treatment of their condition
  - Pathophysiology of hyperthyroid induced hypertension is poorly understood
  - Hyperthyroid cats should have their BP closely monitored before, during, and after treatment
- **Diabetes Mellitus (DM)**
  - Severe hypertension in cats with DM is uncommon:
    - Prevalence rate of 0%-15%
    - Often confounded by concurrent conditions, such as CKD
    - Important to look for comorbidities in cats with DM if hypertension is identified
Secondary Hypertension continued

- Primary Hyperaldosteronism (PHA)
  - Uncommon condition in cats
  - PHA is an excess production of aldosterone independent of its regulator, angiotensin II
  - Typically due to an adrenal tumor
  - Hypertension is present in 50%-100% of cats with PHA
  - PHA may be underdiagnosed, mistaken for CKD
  - Low serum potassium levels, weakness, polyuria (PU)/polydipsia (PD), and hypertension unresponsive to therapy should prompt further investigation
    - Clinical findings serving as clues: low potassium levels, PU/PD, ocular changes
    - Blood pressure, potassium levels difficult to regulate with conventional therapy

- Pheochromocytoma
  - Rare tumor in cats
  - Excessive circulating catecholamine levels
  - Sustained or paroxysmal bouts of hypertension

- Hyperadrenocorticism (HAC)
  - Uncommon condition in cats
  - Prevalence of hypertension reported to be 19%

- Medications Associated with Hypertension
  - Erythropoiesis-stimulating agents
  - Phenylpropanolamine
  - Ephedrine
  - Chronic high-dose sodium chloride
  - Albuterol intoxication

Situational Hypertension

- BP increase that occurs during in-practice measurement in an otherwise normotensive individual
- Caused by autonomic nervous system alterations resulting from excitement or anxiety on higher centers of the central nervous system (CNS)
- Resolves under conditions that decrease or eliminate the physiologic stimulus
- Can lead to an erroneous diagnosis of pathologic systemic hypertension – there is no justification to treat situational hypertension in cats
- There are many situations that may induce situational hypertension resulting in falsely elevated BP readings, including:
  - Acute situational (iatrogenic hypertension)
    - Anxious cats more prone
    - Trip to practice
    - Pain
    - Hospitalization
      - Intravenous fluid therapy
      - Hospitalization in same ward as dogs, ward with lights on all the time
      - Handling by staff who wear heavy scents, scrubs smelling of dogs
      - Prolonged hospital stays
      - Too frequent handling, disturbing unnecessarily when resting
  - Chronic situational
    - Generally stressed cats – behavioral
    - Pain – osteoarthritis (OA), periodontal disease, systemic disease

Confirm hypertension with repeat BP measurements at a separate visit prior to starting medical therapy except in emergent situations where there is clear evidence of ocular or neurological target organ damage (TOD). Use minimal, gentle Feline-Friendly handling (visit catvets.com/handling) in a calm, quiet environment to reduce situational hypertension.
Categorization continued

**Categorization**

Categorization of hypertension ideally includes:

- Complete and thorough history including diet, medication, and supplements
- Complete physical examination including ophthalmic exam
- Repeatable BP levels (note type of BP device, cuff size, limb used – see BP Assessment Form in the digital toolkit)
- Complete blood count (CBC), chemistry profile, Symmetric Dimethylarginine (SDMA), Total T4, Free T4
- Urinalysis, urine culture, urine protein creatinine ratio (UPCR)

Additional diagnostic tests may be considered:

- Thoracic radiographs
- Abdominal radiographs
- Echocardiogram
- Electrocardiogram
- Abdominal ultrasound
- Potentially ACTH stimulation test, aldosterone level