Clinical Use
- Discriminate primary hyperparathyroidism from tumor hypercalcemia
- Diagnose hypoparathyroidism
- Monitor severity of secondary hyperparathyroidism in chronic renal failure

Reference Range

**PTH, Intact**  pg/mL
Adults  10-65
Children
6-9 y  9-59
10-13 y  11-74
14-17 y  9-69

**Calcium**  mg/dL
Adults  8.8-10.1

**Ionized Calcium**  mg/dL
Children
8 mo-10 y  4.9-5.4
11-17 y  4.8-5.3


Interpretive Information
- Primary hyperparathyroidism
- Secondary hyperparathyroidism
- Renal failure
- Pseudohypoparathyroidism
- Hypoparathyroidism
- Hypercalcemia of malignancy

Clinical Background
Parathyroid hormone (PTH) acts to increase calcium absorption from the gut and to mobilize calcium from bone. The net effect is to increase the extraacellular concentration of calcium and prevent hypocalcemia. PTH secretion by the parathyroid gland is modulated by serum calcium concentration. Low calcium stimulates and high calcium inhibits PTH secretion.

PTH levels are used to assess disorders of calcium metabolism, including primary and secondary hyperparathyroidism, tumor hypercalcemia, and hypoparathyroidism.

Method
**PTH (8837X, 36736X)**
- Immunochemiluminometric assay (ICMA)
- Analytical sensitivity: 3 pg/mL
- Analytical specificity: 100% cross-reactivity with intact PTH (amino acids 1-84) and 45% with the 7-84 C-terminal fragment; no detectable cross-reactivity with other PTH fragments or with calcitonin

**Calcium, total (8837X)**
- Spectrophotometry
- Analytical sensitivity: 0.2 mg/dL

**Calcium, ionized (36736X)**
- Ion specific electrode
- Analytical sensitivity: 0.4 mg/dL

Specimen Requirements
**PTH and total calcium (8837X)**
2 mL frozen serum
1 mL minimum (infants, 0.5 mL)

**PTH and ionized calcium (36736X)**
- PTH
2 mL frozen serum (no additive red top or SST red top tube); 1 mL minimum

- Calcium, ionized
2 mL refrigerated serum (SST red-top tube, centrifuged, unopened); 0.6 mL minimum