Total Calcium (Serum)

Description	Part of bone profile Reported as both total calcium and calcium relative to normalised albumin (adjusted for changes in albumin concentration)
Indication	Diagnosis and monitoring of disorders of calcium homeostasis and bone metabolism
Additional Info	Serum calcium is 40% protein bound (albumin 32%, globulin 8%), 10% in the form of freely diffusible inorganic complexes and 50% free (ionised). Total serum calcium is adjusted using a population derived formula
Concurrent Tests	PTH, Vitamin D, magnesium, phosphate
Dietary Requirements	N/A
Interpretation	The gut, bone and kidney are three major organ systems involved in homeostasis of calcium, controlled via PTH and Vitamin D. **Hypercalcaemia** most frequently caused by hyperparathyroidism, malignancy and over-treatment with vitamin D, particularly vitamin D analogues Alfacalcidol and Calcitriol.. Other causes include thyrotoxicosis, sarcoidosis, tertiary hyperparathyroidism, lithium, thiazide diuretics, Paget's disease with immobility, milk alkali syndrome, and more rarely Addison's disease and acromegaly. **Hypocalcaemia** results from hypoalbuminaemia, chronic kidney disease (ionised levels normal), vitamin D deficiency, acute renal failure, hypoparathyroidism, magnesium deficiency, acute pancreatitis, blood transfusion, altered vitamin D metabolism, rhabdomyolysis and conditions resulting in shock. Familial hypocalciuric hypercalcaemia (FHH) is a rare condition where patients have defective calcium sensing receptors leading to a raised serum calcium level by which PTH release is triggered. They exhibit a mild PTH-dependent hypercalcaemia. As the receptor is expressed in renal tubules, inappropriate calcium reabsorption occurs leading to hypocalciuria.
Collection Conditions	N/A
Frequency of testing	N/A