

Consider the following information when a new analyte (test) is added to the laboratory handbook and at scheduled review.

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Field	Detail	Essential?
Test Name (Analyte)	25-OH Vitamin D	Yes
Alternative Name(s) and Keywords	Vit D	Yes
Discipline/Specialty	Biochemistry	Yes
Description	<p>Vitamin D is a secosteroid that is made in the skin when 7-dehydrocholesterol is converted to previtamin D₃ during exposure to ultraviolet B radiation from sunlight. Vitamin D can also be ingested in the diet as vitamin D₂ (ergocalciferol) or vitamin D₃ (cholecalciferol). Although synthesis by the skin is the more important source of vitamin D, the normally low dietary intake of vitamin D₂ or vitamin D₃ maybe critical when exposure to sunlight is lacking. Once vitamin D₂ or vitamin D₃ enters the circulation, it is transported to the liver. In the liver both Vitamin D₂ and vitamin D₃ are hydroxylated to give 25-hydroxyvitamin D₂ (25-(OH)D₂) or 25-hydroxyvitamin D₃ (25-(OH)D₃) which is the main circulating form of vitamin D. The hepatic vitamin D 25-hydroxylase is not tightly regulated thus 25-OHD levels will reflect an increased/decreased cutaneous production or ingestion of vitamin D. Although 25-OHD is much less biologically active than 1,25(OH)₂D, the measurement of circulating 25-OHD provides the best information to determine if a patient is vitamin D deficient, vitamin D insufficient, vitamin D sufficient or vitamin D intoxicated. There are several reasons for this including the increased half-life of 25-OHD, thus it provides an indication of vitamin D stores obtained from UV light and also dietary intake over long periods. The half-life of 25-OHD is approximately 3 weeks, this is in contrast to the half-life of the parent vitamin D which is 24 hours and the half-life of 1,25(OH)₂D which is of the order 4-6 hours. In addition plasma concentrations of 1,25(OH)₂D but not 25-OHD are maintained normal or even elevated in mild to moderate osteomalacia due to secondary hyperparathyroidism.</p>	Yes
Clinical Indication	<p>Diagnosis of vitamin D deficiency Monitoring of vitamin D levels after supplementation. Osteomalacia Hypercalcaemia (in vitamin D supplementation). Vitamin D toxicity</p>	Yes

Patient Preparation	None	Yes
Specimen Container	Serum or serum gel	Yes
Container Image		Yes
Primary Sample Type	Blood	Yes
Minimum Volume Required <small>(µL for serum//blood/urine etc. unless otherwise stated)</small>	1 mL serum (adult) 0.5 mL serum (adult)	Yes
Special Precautions / Requirements	None	Yes
Transport and Storage Requirements	Transport first class post Store frozen until analysis if there is a delay	Yes
Telepath Test Code	VITDN5	Yes
National Pathology Code <small>(READ/SNOMED CT)</small>	To be supplied by LCL I.T. as required*	No
Reference Interval(s)	Total Vitamin D [25(OH)D] is the sum of 25-(OH)D ₂ and 25-(OH)D ₃ <ul style="list-style-type: none"> • 25(OH)D < 25 nmol/L is deficient • 25(OH)D of 25-50 nmol/L is insufficient • 25(OH)D > 50 nmol/L is sufficient in the absence of bone loss • >150nmol/L: ?Over-replaced, may need a reduction in dose 	Yes
Telephone Action Limit(s)	N/A	Yes
Measurement Units	nmol/L	Yes
Clinical Interpretation	Total Vitamin D [25(OH)D] is the sum of 25-(OH)D ₂ and 25-(OH)D ₃ <ul style="list-style-type: none"> • 25(OH)D < 25 nmol/L is deficient • 25(OH)D of 25-50 nmol/L is insufficient • 25(OH)D > 50 nmol/L is sufficient in the absence of bone loss • >150nmol/L: ?Over-replaced, may need a reduction in dose 	Yes
Useful Links / Guidelines	Pan Mersey Cluster Guidance for Treatment of Vitamin D Deficiency in Adults (2020)	Yes
Common Interferences / Causes of Spurious Results	None	Yes
Availability of Clinical Advice	Duty Biochemist Service	Yes

Significant Change Values		No
Testing Frequency / Minimum Re-testing Interval	As required Not within a 3 month window of a loading dose	Yes
Related tests	Calcium profile, parathyroid hormone	Yes
Technology & Analytical Principle Used	Competitive immunoassay (Roche Diagnostics)	Yes
EQA Scheme	DEQAS and NEQAS	Yes
Laboratory Performed	RLH	Yes
UKAS Accreditation Status	Unaccredited	Yes

Form completed by: A Davison

Date: 07/12/22

Change control completed by:
(QMS-EXTD-160, LCL Laboratory Handbook)

Date: