Vitamin A

Synonyms	Retinol, beta carotene, retinoids, retinoic acid
Clinical Indication	Suspected Vitamin A deficiency in at risk patients. Vitamin A is abundant in food, common food sources include liver, kidney, egg yolk and butter. Provitamin A (beta carotene) is found mostly in green leafy vegetables, sweet potatoes and carrots. Vitamin A deficiency is rarely seen in resource rich countries such as the UK. However, deficiency (with or without xerophthalmia [abnormalities in corneal and conjunctival development]) can be seen in patients with disorders associated with fat malabsorption such as cystic fibrosis (and other causes of pancreatic insufficiency), coeliac disease, cholestatic liver disease, small bowel Crohn disease, short bowel syndrome and in patients who have undergone certain types of bariatric surgery. Clinical manifestations include Xerophthalmia, poor bone growth, non-specific dermatological problems and impaired humoral immune response. The diagnosis of vitamin A deficiency is usually made by clinical findings. Please note that for the majority of patients who have a gastric band, sleeve gastrectomy or gastric bypass, requirements for vitamin A can be met by oral diet and a complete multivitamin and routine testing is not advised. Patients who have undergone bilio-pancreatic diversion/duodenal switch (BPD/DS) are more likely to have additional requirements for Vitamin A and monitoring may be necessary in these patients. Vitamin A toxicity is unusual and requires either the ingestion of a single very large dose (>200,000ug) or long term ingestion of amounts higher than 10 times the recommended daily allowance.
Part of Profile / See Also	
Request Form	Combined Pathology manual Blood form or ICE request
Availability / Frequency of Analysis	Referred test: Analysed at King's College Hospital (Synnovis 8826), if specific criteria met.
Turnaround Time	Up to 3 weeks
Patient Preparation	None required
Sample Requirements	
Specimen Type	Lithium heparin plasma – SAMPLES MUST BE PROTECTED FROM LIGHT (place sample in a brown envelope or wrap in foil). Same sample can be used for Vitamin A.
Volume	2ml

Container	 Lithium heparin – without gel (Dark green top – BD Vacutainer)  Paediatric lithium heparin (Orange top – Sarstedt tube)  Paediatric lithium heparin (pale green top – BD Microtainer tube)
Reference Range & Units	Adult range: 1.4 – 3.84 umol/L Children: Age related reference range provided on the report.
Interferences	Serum retinol levels may be artificially low in patients with severe inflammatory disease (due to the decrease in many carrier proteins) and severe malnutrition (due to the requirement of dietary protein, energy and zinc for the synthesis of retinol binding protein). Conversely, in a patient with vitamin A deficiency, a dose of vitamin A can cause a transient rise in serum retinol concentrations into the normal range.
Interpretation & Clinical Decision Value (if applicable)	
References	Up to Date – Overview of Vitamin A – searched November 2018 BOMSS Guidelines on peri-operative and postoperative biochemical monitoring and micronutrient replacement for patients undergoing bariatric surgery September 2014 http://www.viapath.co.uk/our-tests/vitamins-a-and-e
Test code	VITA
Lab Handling	Aliquot 500ul of plasma and store in frozen referrals rack at -20C, keep plasma protected from light (place in a brown envelope or wrap in foil). Sample sent frozen by courier to King's College.

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