

ROTUNDA HOSPITAL DEPARTMENT OF LAB MEDICINE
Biochemistry Active Test Repertoire Table LF-GEN-0066 Ed 07

Test	Minimum Retest Interval	Source	Sample Type	Special Precautions	Routine Turnaround Time	Urgent Turnaround Time	Reference Range	INAB Accredited
Alanine Aminotransferase (ALT)	<p>1. LFT/renal in preeclampsia. At least daily when the results are abnormal but more often if clinically indicated If mild hypertension* then perform tests twice weekly. If moderate/severe hypertension* then perform tests three times a week</p> <p>2.LFTs in obstetric Cholestasis: Once obstetric cholestasis is diagnosed, it is reasonable to measure LFTs weekly until delivery. Postnatally, LFTs should be deferred for at least 10 days</p> <p>3. Women with persistent pruritus & normal biochemistry: LFTs repeated every 1–2 weeks</p> <p>4.In the acute inpatient setting: testing at 72 hr intervals in acute setting)</p> <p>5. Acute poisoning (e.g. Paracetamol), TPN, liver unit, acute liver injury and ITU patients may require more frequent monitoring.</p>	1	Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adult Female : < 33U/L Adult Male : < 41 U/L Neonate : 7 -36 <1Y 12-28 <13Y 10-25 <19Y Female 12-27 <19Y Male	✓
Albumin	<p>1.LFTs in obstetric Cholestasis: Once obstetric cholestasis is diagnosed, it is reasonable to measure LFTs weekly until delivery. Postnatally, LFTs should be deferred for at least 10 days In the acute inpatient setting: testing at 72 hr intervals in acute setting Acute poisoning (e.g. Paracetamol), TPN, liver unit, acute liver injury and ITU patients may require more frequent monitoring</p>		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adult Non preg/Male: 35-50 g/L Pregnant: 23-42 g/L Neonate: 33-45 <15d 31-50 <1Y 40-49 <8Y 42-51 <15Y 40-53 <19Y Female 43 -53 <19Y Male	✓
Alkaline	In the acute inpatient setting: testing at 72 hr intervals in acute		Lithium	To arrive in	2-3 hrs	45 mins	Adult Non Preg/Male	✓

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Phosphatase (ALP)	setting Acute poisoning (e.g. Paracetamol), TPN, liver unit, acute liver injury and ITU patients may require more frequent monitoring		Heparin	lab within 4 hrs			:30-130U/L Pregnant: 1 st trimester 35-105 U/L 3 rd trimester 20-230 U/L Neonate: 83-248 < 15d 122-469 <1Y 142-335 <10Y 129-417 <13Y 57-254 <15YFemale 116-468 <15Y Male 50-117 <17YFemale 82-331 <17Y Male 45-87 <19Y Female 55-149 <19Y Male	
Ammonia	Hyperammonimia is medical emergency. Repeat of ammonia needed by the medical staff		EDTA plasma	If not in the lab within 15 mins take sample on ice bring to lab immediately	2-3 hrs	45 mins	10-100 <4W 10-40 <18Y 11-51 <99Y Female 16-60 <99Y Male Units: umol/L	
Amylase	Amylase half-life is about 7 hours. Thus minimal retesting interval in cases of suspected pancreatitis		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adult: 28-100U/L Neonate: 3-11 <15d 3-26 <13w 3-58 <1Y 29-118 <19Y	✓
Aspartate Aminotransferase	In the acute inpatient setting: testing at 72 hr intervals in acute setting		Lithium Heparin	To arrive in lab within 4	2-3 hrs	45 mins	Adults Female: <32 U/L	✓

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(AST)	Acute poisoning (e.g. Paracetamol), TPN, liver unit, acute liver injury and ITU patients may require more frequent monitoring			hrs			Adult Male: <40 U/L Neonate: 40-175 <15d 28- 77 < 1Y 29-53 < 7Y 26-45 <12Y 21-34 <19Y Female 22-44 <19Y Male	
Bile Acids	Bile acids in obstetric Cholestasis: Weekly monitoring. Twice weekly monitoring advised in later weeks if clinical state changing		Lithium Heparin / serum	Minimum 4hr fast.	2-3 hrs	45 mins	Adult Female 0 - 10 umol/ Paeds: 3.9-6.3 <5mths 6.6-9.4 <24mths 4.3-6.4 <5yrs 3.6-5.4 <11yrs 3.1-4.1<19yrs	✓
Bilirubin Direct	(see ALT for detail)		Lithium Heparin	To arrive in lab within 4hrs	2-3 hrs	45 mins	Adult: <5µmol/L Paeds: 3.4-7.7 <15d 1.5-3 <1Y 1.5-1.8 <9Y 1.5-2.9 <13Y 1.5-4 <19YFemale 1.5-4.3 <19Y Male	✓
Bilirubin Total	(see ALT for detail)		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adult: <21 µmol/L Paeds: None quoted<6w 1.5-10 <1Y	✓

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							1.5-5 <9Y 1.5-8 <12Y 1.5-10 <15Y 1.5-12 <19Y	
Calcium	In the setting of monitoring acute hypo/hypercalcemia, a repeat sample may be needed post correction.		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adults: <60Y 2.15-2.50 mmol/L >60Y 2.2- 2.55 mmol/L Paeds: 2.16-2.74 <1Y 2.31-2.64 <19Y	✓
Chloride	An inpatient with an admission chloride within the reference range should not have a repeat chloride within the average length of stay of 4 days. In haemodynamically unstable patients, serum sodium may be assessed as required.		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adult: 95-108 mmol/L Paeds: 97-114 <28d 98-113 <1Y 98-111 <19Y Urine : No range quoted	✓
Creatinine	eGFR or creatinine within previous seven days in patients with acute illness or renal disease as per guidance from RCPATH, UK		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adult Female: 45-85 µmol/L Pregnant: 40-80 µmol/L Adult Male: 60-	✓

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							105µmol/L Paeds: 0-100 < 7d 10-70 < 4wk 10-70 < 1Y 15-40 < 4Y 15-50 < 6Y 15-60 < 9Y 20-80 < 14Y 30-90 < 18Y	
Creatinine Clearance (24hr collection)	eGFR or creatinine within previous seven days in patients with acute illness or renal disease as per guidance from RCPATH, UK		24 hr urine & Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Non Pregnant: 80-125ml	✓
Creatine Kinase (CK)	CK half-life is 12 hours, thus a minimal testing interval of 12 hours in cases of rhabdomyolysis		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adult Female: 25 - 200U/L Adult Male 40 - 320 Paeds: 0-475 <90d 0-250 <1Y	✓
C-Reactive Protein (CRP)	Not within a 24 hr period following an initial request with the exception of paediatric requests	2.	Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs during routine day. 10 hrs post midnight	45 mins	<5 mg/ L	✓
CSF Protein	once		CSF	Send to the lab immediately	2-3 hrs	45 mins	0.1-0.4 g/L	✓
CSF Glucose	once		CSF in sodium fluoride	Send to the lab immediately	2-3 hrs	45 mins	2.5-4.0 mmol/L	✓

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			tube					
CSF Lactate	once		CSF in sodium fluoride tube	Send to the lab immediately	2-3 hrs	45 mins	Adult : 1.1 - 2.4 mmol/L Neonate : 1.1 - 6.7 <3d 1.1 - 4.4 <10d 1.1 - 2.8 <18Y	✓
Fructosamine	A minimum testing interval of 21 days		Lithium Heparin /Serum	To arrive in lab within 4 hrs	1 week	N/A	205-285µmol/l	✓
GGT	1. See LFTs 2. GGT and conjugated bilirubin in acute setting: Testing at weekly intervals		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adult Female : 6 - 42 U/L Adult Male: 10 -71 U/L Neonate: <1 month: 3 - 151 U/L 1 - 2 month : 3 - 114 U/L 2 - 4 month : 3 - 81 U/L 4 - 7 month: 3 - 34 U/L <12yr : 3 - 24 U/L	✓
Gentamicin	Every 24h at start of therapy on high-dose parenteral regimes less frequently when stable. Especially important in the elderly, patients with impaired renal function and those with cystic fibrosis		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Dependant on dose and t of dose.	✓
Glucose	In haemodynamically unstable patients, plasma glucose may be assessed as required		Sodium Fluoride		2-3 hrs	45 mins	Adult fasting: 3.0 - 5.1mmol/L	✓
Glucose Tolerance Test	GTT is carried once between 24 and 28 weeks of pregnancy		Sodium Fluoride		2-3 hrs	45 mins	Fasting: <5.1 mmol/L	✓

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(Pregnant)							1 Hour: <10.0 mmol/L 2 Hour: <8.5 mmol/L	
Glucose (Postnatal GTT)	As required if there is evidence of hypoglycaemia or clinically indicated		Sodium Fluoride		2-3 hrs	45 mins	Fasting: < 5.6 mmol/L 2 hour: <7.8 mmol/L	✓
Glucose (Breakfast Club)	Diagnosis should not be made on the basis of a single abnormal plasma glucose or HbA1C value. At least one additional HbA1C or plasma glucose test result with a value in the diabetic range is required within 2 weeks of initial measurement, either fasting, from random sample or from the oral glucose tolerance test (OGTT)		Sodium Fluoride		2-3 hrs	45 mins	Fasting: < 5.0 mmol/L 1 hour: <7.0 mmol/L	✓
Haemoglobin A1c	1. Women with diabetes who are planning to become pregnant: Monthly measurement of HbA1C 2. Assessing glycaemic control using HbA1c in pregnancy: HbA1C should not be used routinely for assessing glycaemic control in the 2 nd and 3 rd trimesters of pregnancy.	3.	EDTA	Ethnicity must be included on request form	1 week	N/A	Non Pregnant: 20-42mmol/mol	✓
Lactate	In haemodynamically unstable patients, plasma lactate may be assessed as required		Sodium Fluoride	To reach the lab within 15 mins of blood draw	2-3 hrs	45 mins	0.5 - 2.2 mmol/L	✓
Lactate Dehydrogenase (LDH)	An inpatient with an admission LDH within the reference range should not have a repeat LDH within the average length of stay of 4 days.		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adult female: 135 - 214 U/L Adult male: 135 - 225 U/L Neonate: 10 - 1128 <15d 10 - 424 < 1Y 10 - 305 <10Y 10 - 260 <15Y Female 10 - 270 <15Y Male	✓

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							0 – 240 U/L <19Y	
Magnesium	An inpatient with an admission magnesium within the reference range should not have a repeat magnesium within the average length of stay of 4 days. But in haemodynamically unstable patients, plasma magnesium may be assessed as required during hypomagnesaemia.		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adult: 0.7-1.0 mmol/L Neonates: 0.6-1.0 mmol/L	✓
Phosphate	An inpatient with an admission phosphate within the reference range should not have a repeat phosphate within the average length of stay of 4 days. But in haemodynamically unstable patients, plasma phosphate may be assessed as required		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adult: 0.8-1.5 mmol/L Paeds: 1.71-3.15 <15d 1.47-2.54 <1Y 1.33-2.06 <5Y 1.28-1.82 <13Y 1-1.7 <16Y Female 1.11-1.88 <16Y Male 0.94-1.55 <19Y	✓
Potassium	In haemodynamically unstable patients, serum potassium may be assessed as required. Monitoring of potassium concentrations in patients receiving digoxin: days after initiation or change in digoxin therapy and/or addition/subtraction of interacting drug. Then annually if no change		Lithium Heparin or urine	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adult: 3.5-5.3 mmol/L Paeds: 3.5-6.5 <28d 3.5-5.7 <1Y 3.5-5.4 <19Y Urine : No range quoted	✓
Sodium	An inpatient with an admission sodium within the reference range should not have a repeat sodium within the average length of stay of 4 days. But in haemodynamically unstable patients, serum sodium may be assessed as required		Lithium Heparin or urine	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Non pregnant: 133-146 mmol/L Pregnant: 133-143 mmol/L Paed: 131-143 <28d 133-142 <1Y 133-144 <19Y Urine : No range quoted	✓

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Total protein	Testing at weekly intervals		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Non pregnant: 60-80 g/L Pregnant: 56-76 g/l Paeds: 51-80 <15d 43-69 <1Y 59-73 <6Y 62-75 <9Y 63-78 <19Y	✓
Total Protein Urine (24hr collection)	Urine protein in preeclampsia: At each antenatal visit to screen for pre-eclampsia. Once diagnosed do not repeat quantification of proteinuria. Analysis done once/72 hours in previously negative patients	4.	24 hr Urine collection	To arrive in lab within 4 hrs	2-3 hrs (Routine working hours)	N/A	Adult: <0.15g/L	✓
Total Protein / Creatinine Ratio (PCR)	Urine protein in preeclampsia: At each antenatal visit to screen for pre-eclampsia. Once diagnosed do not repeat quantification of proteinuria. Analysis done once/72 hours in previously negative patients	5.	Spot Urine	To arrive in lab within 4 hrs	2-3 hrs (Routine working hours)	45 mins	0 - 30 mg/mmol Cr	✓
Triglyceride	1 week if assessing triglyceridaemia to see effects of changing diet and alcohol While 1 day in cases of In patients on TPN or who have hypertriglyceridaemia-induced pancreatitis		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Adults: <2.26 mmol/L Paeds: 1.02-3.25 <15d 0.65-3.24 <1Y 0.54-2.47 <19Y	✓
Urea	Inpatient monitoring of a stable patient on IV fluids, adults as well as children: Daily monitoring of U&Es and glucose. In symptomatic patients or following administering of hypertonic saline: Monitoring should be more frequent, i.e. every 2–4 hours. Patient diagnosed with acute kidney injury: U&Es checked on admission and within 24 hours. Monitoring of ACE inhibitors: Within 1 week of starting and 1 week after each dose titration. Then annually (unless required more frequently because of impaired renal function). Diuretic therapy: Before the initiation of therapy and		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Non-pregnant 2.5-7.8 mmol/L Pregnant: 1.0-3.8 mmol/L Paeds: 1.1-7.9 <15d 1.3-5.8 <1Y 3.2-7.6 <10Y 2.6-6.5 <19Y Female 2.6-7.2 <19Y Male	✓

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	after 4 weeks, and then 6 monthly/yearly or more frequently in the elderly or in patients with renal disease, disorders affecting electrolyte status or those patients taking other drugs, e.g. corticosteroids, digoxin.							
Uric acid	During follow up of treatment may be every 3 months. Or more frequently in patients with acute gouty nephropathy or acute gout		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Non pregnant :140-360 µmol/L Pregnant: 120-375 µmol/L Male: 200-430 µmol/L Paeds: 158-748 <15d 88-370 <1Y 100-282 <12Y 147-342 <19Y Female 150-446 <19Y Male	✓
Vancomycin	At least after 3-5 half-lives have elapsed thus, 24 hours after initiation of therapy, trough and peak levels may be taken.		Lithium Heparin	To arrive in lab within 4 hrs	2-3 hrs	45 mins	Trough: 5-10 µg/mL Peak (2 Hours post-infusion) : 20-40 µg/mL	✓

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Androstendione	For monitoring congenital adrenal hyperplasia, 12 weeks minimum retesting interval		Serum		4 days	N/A		
Alpha-Feto Protein (AFP)	For adult females with suspected HCC, a 12 weeks retesting interval (Ref RCPATH UK) For paediatric with suspicion of germ cell tumor or those on treatment for germ cell tumors, the minimum retesting interval is 7 days, as the half life of AFP is 5-7 days.		Serum		4 days	N/A	0.8-5.8IU/L Adults Paeds: 504-54228 <2w 0.8-497 <2m 0.8-145 <3m 0.8-107 <4m 0.8-54 <5m 0.8-18 <6m 0.8-13.9<7m 0.8-11.5<8m	✓
Anti-Thyroid Specific Peroxidase (A-TPO)	Only performed once on 1. Pregnant patients with TSH >2.0 mU/L 2. Non preg patients with TSH > 4.0 mU/L		Serum		24 hours (not including weekends)	N/A	0-34kU/L	✓

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Anti Mullerian Hormone (AMH)	Just once to determine the ovarian reserve on any day of the menstrual cycle. Or as required during IVF treatment with suspected ovarian hyperstimulation syndrome		Serum		4 days	N/A	Adult Female: 8.71 - 83.6 20 - 24 Y 6.35 - 70.3 25 - 29 Y 4.11 - 58.0 30 - 34 Y 1.05 - 53.5 35 - 39 Y 0.193 - 39.1 40 - 44 Y 0.071 - 19.3 45 - 50 Y PCOS: 13.3 - 135 Male: 5.5 - 103 >18Y Unit: pmol/L	Paed Female: 3.6 - 24 <3m 2.4 - 15 <12m 1.5 - 46 <8Y Paed Male: 111 - 347 <15d 599 - 1544 <6m 279 - 651 <1Y 367 - 631 <4Y 316 - 1118 <6Y 257 - 974 <9Y Unit: pmol/L	✓
CA-125	Screening women with family history of ovarian cancer with CA125: Every 12 months Retesting CA125 where imaging is negative within 1 month		Serum		4 days	N/A	1.2-35 kU/L	✓	
CA-153	Monitoring disease recurrence with CA15.3: 2 months		Serum		4 days	N/A	1.5-25 kU/L	✓	
CA-199	Monitoring disease recurrence with CA19.9: 1 month		Serum		4 days	N/A	2-27 kU/L	✓	

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CEA	Follow up of patients who have had medullary thyroid cancer and surgical resection: A baseline CEA and fasting calcitonin should be taken prior to operation. Postoperative samples should be measured no earlier than 10 days after thyroidectomy and plasma calcitonin concentrations are most informative 6 months after surgery At least 4 measurements of calcitonin over a 2–3 year period can be taken to provide an accurate estimate of the calcitonin doubling time. CEA is elevated in approximately 30% of MTC patients, and in those patients CEA doubling time is comparably informative to calcitonin doubling time		Serum		4 days	N/A	0.3-5.2 ug/L	✓
DHEAS	For monitoring of cases of Congenital adrenal hyperplasia, retest interval is 12 weeks. (Ref RCPATH UK)		Serum		4 days	N/A		
Ferritin	Ferritin tested once every 8 weeks except if patient is for monover where a ferritin result from the previous 4 weeks is required		Serum/ Lithium Hep		24 hours (not including weekends)	N/A	Female: 13-150 µg/L Male: 30-400 µg/L Paed: 150-973 <1M 9-580 < 6M 14-101 < 15Y 4-114 < 19Y Female 21-173 < 19Y Male	✓
Folate	Repeat measurement of folate is unnecessary in		Serum	Must	24 hours	N/A	Male :	✓

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	patients with vitamin B12 and folate deficiency			be in lab within 2 hrs of blood draw	(not including weekends)		12-19Y 5.0 – 27.2ng/ml 20-59Y 4.4 – 31.0 ng/ml >60Y 5.6-45.8 ng/ml Female: 12-19 yrs : 5.0 – 27.2 ng/ml 20 -59 yrs : 4.4 – 31.0 ng/ml >60 yrs: 5.6 – 45.8 ng/ml	
Follicle Stimulating Hormone (FSH)	Two tests 4–8 weeks apart in women with possible early or premature menopause		Serum		24 hours (not including weekends)		See table below	✓
Free Thyroxine (FT4)	See TSH		Serum/ Lithium Hep		24 hours (not including weekends)	2 hrs	Adult: 12-22 pmol/L < 1 month: 10-36pmol/L < 1 year: 10-26pmol/L	✓
Free Triiodothyronine (FT3)	If a serum TSH below ref range but >0.1 mU/L is found, then the measurement should be repeated 1–2 months later along with T4 and T3 after excluding nonthyroidal illness and drug interferences.		Serum		4 days	N/A	Adult:3.1-6.8 pmol/L Paed: 3.56-7.48 >4d<1Y	✓
HE4	Screening women with family history of ovarian cancer with HE-4: Every 12 months Retesting HE-4 where imaging is negative within 1 month		Serum		4 days	N/A	15-140 pmol/L	✓
Human Chorionic Gonadotrophin (βHCG)	Urine βHCG (pregnancy): Urine pregnancy test can be repeated at 3 days after a negative result or approx. 28 days after period commences Serum βHCG (pregnancy): Do not repeat if	6.	Serum/ Lithium Hep		24 hours (except at weekends)	2 hrs	0 – 1 U/L	✓

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	<p>positive. Repeat after 3 days if negative and no menstrual period has occurred. Serum HCG doubling time = 1.5-2 days.</p> <p>Serum βHCG (ectopic pregnancy) 48 h repeat interval</p> <p>Serum βHCG (tumour marker): After evacuation of a molar pregnancy, the hCG concentration should be monitored every week until normalization and then every month during the first year.</p>							
Interleukin 6 (IL6)	Repeat intervals 24 hrs		Lithium Hep		As required		1.5-7.0 pg/ml	
Lutenizing Hormone (LH)	Two tests 4–8 weeks apart in women with possible early or premature menopause Or 1 monthly to each for LH surge		Serum		24 hours (not including weekends)	N/A	See table below	✓
Oestradiol	No evidence, guideline or consensus exists for repeat frequency. For patients undergoing IVF samples may be taken daily. For patients receiving implant treatment a pre-implant value is checked to avoid tachyphylaxis. Frequency depends on frequency of implant. For patients receiving implant treatment a pre-implant value is checked to avoid tachyphylaxis		Serum		24 hours (not including weekends)	N/A	Adults: See table below Paeds: F <10Y 22-99 pmol/L M <15Y 0 – 20 pmol/L	✓
Parathyroid Hormone (PTH)	3 months (Ref RCPATH UK)		Serum		4 days	N/A	Paeds (pmol/L): 0.7-6.3 <28d 0.9-6.5 <11m	✓

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							1.2-6.3 <10y 1.6-7.2 <17y Adult (pmol/L): 1.6-6.9	
Procalcitonin	24 hours		Lithium Hep		As required	2 hrs	0.02-0.15 ng/ml	✓
Progesterone	Testing weekly in patients with irregular cycle from day 21 until next menstrual period		Serum		24 hours (not including weekends)	N/A	13.1-46.3 nmol/L	✓
Total Prolactin	Patients with hyperprolactinaemia commencing dopamine agonist therapy: Repeat prolactin measurement after 1 month to guide therapy.		Serum		24 hours (not including weekends)	N/A	Female: 100-500mU/L Male: 85-325mU/L	✓
Bioactive Prolactin	Performed once per patient if total prolactin is >700mU/L and patient is not pregnant		Serum		Run every 2 weeks as required.	N/A	Female: 75-381 mU/L Male: 63-245 mU/L	✓
Sex Hormone Binding Globulin	Possibly 3-6 months in monitoring patients with hirsutism during therapy		Serum		24 hours (not including weekends)	N/A	Female: 32-128 nmol/LL (<50Y) 27 – 128 nmol/L (>50Y) Male: 18-54 nmol/L (<50Y) 27 – 77 (>50Y)	✓
Testosterone	Diagnosis of male androgen deficiency: Repeat testosterone measurement to confirm diagnosis recommended. Monitoring of patient with androgen deficiency on replacement therapy: Measure testosterone value 3–6 months after initiation of testosterone therapy.		Serum		24 hours (not including weekends)	N/A	Female: 0.3-1.7 nmol/L (<50Y) 0.1– 1.4 nmol/L (>50Y) Male: 9-29 nmol/L (<50Y) 7- 26 nmol/L (>50Y)	✓
Free androgen Index (FAI)	Possibly 3-6 months in monitoring patients with Hirsutism during therapy		Serum		24 hours (not	N/A	Female : 0.3 – 5.62 (<50Y) 0.19- 3.63 (>50Y)	✓

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Test	Minimum Retest Interval	Source	Sample Type	Special Precautions	Routine Turnaround Time	Urgent Turnaround Time	Reference Range	INAB Accredited Test Reg No 208MT
					including weekends)			
Thyroid Stimulating Hormone (TSH)	TFTs should be performed every 4–6 weeks for at least 6 months following radioiodine treatment. Once fT4 remains in ref range then frequency of testing should be reduced to annually. Lifelong annual follow up is required. Indefinite surveillance required following radioiodine or thyroidectomy for the development of hypothyroidism or recurrence of hyperthyroidism. TFTs should be assessed 4–8 weeks post treatment then 3- monthly for up to one 1 year, then annually thereafter.		Serum/ Lithium Hep		24 hours (not including weekends)	2hrs	Adult: 0.3-4.2 mU/L < 2 days: 5.0 -40 mU/L <11 years: 0.1-5.5 mU/L	✓
Vitamin B12	Repeat measurement of folate and vitamin B12 is unnecessary in patients with vitamin B12 and folate deficiency		Serum		24 hours (not including weekends)	N/A	197-711 pg/ml	✓
Vitamin D	Once per patient		Serum		4 days	N/A	30-125 nmol/L	✓

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Pregnant women - monitoring of thyrotoxicosis treatment. (UK)

In women taking anti-thyroid drugs TFTs should be performed prior to conception, at time of diagnosis of pregnancy or at antenatal booking. Newly diagnosed hyperthyroid patients require monthly testing during pregnancy until stabilised. Pregnant women receiving antithyroid drugs should be tested frequently (perhaps monthly) (*UK guidelines for the use of thyroid function tests. Association for Clinical Biochemistry, British Thyroid Association, British Thyroid Foundation July 2006*)

Pregnant women - monitoring thyroxine replacement therapy

Both TSH and fT4 (and fT3 if TSH below detection limit) should be measured to assess thyroid status and monitor thyroxine therapy in pregnancy. The thyroid status of hypothyroid patients should be checked with TSH and fT4 during each trimester. Measurement of total T3 is done only at request of Consultant Endocrinologist. The following TFT test sequence is recommended by the UK guidelines [ii]:

• Before conception • at time of diagnosis of pregnancy • at antenatal booking • at least once in second and third trimesters and again after delivery • newly diagnosed hypothyroid patient to be tested every 4-6 wks until stabilised.

(Association for Clinical Biochemistry, British Thyroid Association and British Thyroid Foundation (2006) UK guidelines for the use of thyroid function tests)

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Pregnancy sub-clinical hypothyroidism

Women with subclinical hypothyroidism who are not initially treated should be monitored for progression to overt hypothyroidism with serum FT4 and TSH every 4 weeks until 16-20 weeks gestation and at least once between 26-32 weeks.

(Euthyroid women (not receiving Levothyroxine) who are anti-thyroid antibody positive should be monitored during pregnancy - with serum FT4 and TSH every 4 weeks until 16-20 weeks gestation and at least once between 26-32 weeks).

(Stagnaro-Greenet et al. The American Thyroid Association Taskforce on Thyroid Disease During Pregnancy and Postpartum. Thyroid. 2011 ; 21:1081-1125)

Reference Ranges for Fertility Hormones

Analyte	Unit	Male	Follicular Phase	Midcycle	Luteal phase	Post-menopausal
LH	U/L	1-9	2-13	14-96	1-12	8-60
FSH	U/L	1-12	3-12	5-25	1-8	25-135
Oestradiol	pmol/L	37-147	55-1287	-	-	18.4-183

Average HCG (U/L) and days of cyesis (days post LMP) – Royal Berkshire Hospital figures:

Day	HCG	Day	HCG	Day	HCG	Day	HCG
24	50	25	63	26	80	27	102
28	135	29	180	30	245	31	320
32	1300	33	545	34	710	35	945
36	4300	37	1700	38	2300	39	3100
45	14500	41	6200	42	8200	43	11000
44	34500	45	18000	45	2300	47	28000
48	56000	49	45000	50	46000	51	51000
52	80000	53	62000	54	68000	55	74500
66	101000	57	86000	58	91000	59	96000

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Figures are based on data collected between December 1996 and February 1997 in the Endocrinology Department, RBH, from apparently normal pregnancies. There is considerable individual variation, but around 50% of normal pregnancies give HCG values within 3 days of the average day, and around 80% within 1 week of the average day. After 60 days of cyesis, HCG values plateau and being to decline. HCG results cannot therefore be used to predict dates for pregnancies of duration likely to be more than 60 days.

Reference

1. RCOG Severe preeclampsia/ eclampsia, management_(Green-top 10A).NICE CG107 Hypertension in_pregnancy,_RCOG guidelines for Obstetric Cholestasis (Green Top 43) 2011
2. Hutton *et al.* Ann Clin Biochem 2009; **46**: 155-158.
3. NICE CG063 (2008)
4. NICE CG62 – Antenatal care.
5. NICE CG107 Hypertension in pregnancy
6. 6. RCOG Guideline 21 Implementation of probabilistic decision rule improves the predictive values in algorithms in the diagnostic management of ectopic pregnancy. Mol BWJ *et al.* Hum Reprod 1999. **14**;2855-2262.Kinetics of Serum Tumor Marker Concentrations and Usefulness inbClinical Monitoring. Bidart J-M *et al.* Clinical Chemistry 1999; **45**: 1695-1707.