

# Weqas

GLOBAL PROVIDER OF QUALITY  
IN DIAGNOSTIC MEDICINE



BROCHURE





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# Director's Profile

**A**nnette Thomas is a Consultant Clinical Biochemist at Cardiff and Vale University Health Board with over 40 years' experience in Laboratory Medicine, 20 years of which has been as Director of Weqas.

Annette is also the national clinical lead for POCT representing POCT in Welsh Government advisory Committees and chairs the POCT Strategic Board and POCT Co-ordinators Network in Wales.

She is a member of the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) Task Force on Global Lab Quality (TF-GLQ) and past chair of the Committee on Analytical Quality (C-AQ).

She has previously held posts on the Executive Board of the European Committee for External Quality Assurance Programmes in Laboratory Medicine (EQALM), chair of the All Wales Clinical Biochemistry Group (ACB), chair of the National Clinical Biochemistry and Laboratory Medicine Audit Committee in the UK, a member of the Association of Clinical Biochemistry and Laboratory Medicine Scientific Committee and a member of the Royal College of Pathologists Scientific Advisory Committee on Clinical Biochemistry.



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# About Us

**E**stablished in 1968, Weqas is one of the largest External Quality Assessment providers in the UK, with over 50 years of experience in delivering global Quality Assurance Programmes in Laboratory Medicine.

Weqas is a “not for profit” NHS organisation hosted by Cardiff and Vale University Health Board, based in Cardiff, UK.

Weqas provides over 50 EQA Programmes, including external audit, performance analysis and an educational advisory service and employs an expert team of scientists delivering services in Laboratory EQA, Point of Care (POCT) EQA, Reference Measurement service, Internal Quality Control (IQC) Production and Education and Training.

Our programmes are underpinned by commutable, metrological, traceable samples and informative reports. Our range of Web-based reporting options cater for the Laboratory Manager, the Laboratory Scientist and the POCT end user. Our team of experienced Scientists and POCT Co-ordinators provide a unique troubleshooting and problem solving service to our clients.

## GLOBAL PROVIDER OF QUALITY IN DIAGNOSTIC MEDICINE



4301



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## Laboratory and Point of Care EQA Services

Supplying to more than 35,000 sites per month, Weqas provides over 50 EQA Programmes. As well as Healthcare pathology laboratories, these services are also provided to independent pharmacies, primary care physicians, occupational health providers, forensic pathology services, veterinary pathology laboratories, clinical trial units and diagnostic companies. Weqas EQA services (4301) are accredited in accordance with ISO/IEC 17043:2023 Conformity assessment - General requirements for the competence of proficiency testing providers.

## Third Party Control (IQC)

Weqas also provides independent third party IQC and Quality Control Reference Material (QCRM) for a range of analytes. Targeted at clinically relevant concentrations, these products, along with our other services, provide the necessary tools to achieve compliance to ISO 15189:2022. Unbiased, accurate and independent controls are available for assuring the quality of your test items. Weqas IQC are designed and tailored to your specific requirements by a team of Scientists with over 20 years experience in manufacturing.

Our IQC and Quality Control Reference Material (QCRM) are registered with the UK Medicine and Healthcare products Regulatory Agency (MHRA) and conform to the Medical Devices Regulations 2002 (SI 2002 No 618, as amended) (UKMDR2002).

## Reference Measurement Services

The Weqas Reference Laboratory is a Joint Committee on Traceability in Laboratory Medicine (JCTLM) listed Reference Measurement Service Provider. JCTLM is a European Network of highly specialist laboratories providing accurate target value assignment of clinical material to assist in the global harmonisation of Pathology results. This is the only laboratory currently in the UK providing this service. Weqas also contributes to Standard reference Material (SRM) value assignment in conjunction with the Joint Research Centre (JRC). The Reference Laboratory is accredited to ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories and in accordance with ISO 15195:2018 Laboratory medicine – Requirements for the competence of calibration laboratories using reference measurement procedures. This service is available to IVD manufacturers, Quality Control manufacturers, EQA providers and Clinical Laboratories.

## Education and Training

With changing technologies, techniques and patient care delivery models, there is a pressing need to ensure there is a focus within education and training programmes for standardisation of analyses, error reporting, poor performance and laboratory accreditation. Education workshops, e-learning and presentations can be tailored to our clients needs.

## Benefits

- Accredited to ISO 17043, and 17025 in accordance to 15195.
- Web based interactive EQA programmes.
- 40 years of clinical expertise.
- Reference Measurement Laboratory for traceability.

## Features

- Wide range of accredited EQA Programmes for Laboratory and Point of Care Diagnostic Medicine.
- Products designed to reflect actual patient samples; endogenous, single donors and pooled donor samples distributed to cover the complete clinical range.
- Liquid stable, commutable, linear, traceable samples designed to cover the cut-off, analytical, pathological and clinical decision levels.
- Reference Measurement Value Assignment for Laboratories, EQA Providers and IVD Manufacturers.

The Weqas team is supported by a Steering Committee which advises the organisers on the overall operation of its programmes, including the frequency of distribution of materials, the types of materials to be distributed, methods of statistical analysis, data presentation, and the desirability of introducing new investigations.

More information on the Steering Committee including members' profiles can be found on our website:

[www.weqas.com](http://www.weqas.com)

# EQA

# Programmes

**W**eqas is an ISO 17043 accredited proficiency testing provider (number 4301), offering a range of EQA programmes for Laboratory Medicine. Weqas offers a visibly different, high quality, clinical and science-based service to support laboratories in maintaining ISO 15189, underpinned by commutable, metrological, traceable samples and informative reports.

For a complete list of all our EQA Programmes and analytes, please see our Quick Guide on page 38-45.

In a recent article on EQA best practice, the following factors were identified as core factors for laboratories in their choice of EQA provider:

## \*Factors influencing choice of EQA provider - Why Weqas?

Accreditation status	Weqas accredited to ISO 17043.
Clinically relevant distribution frequency	Where EQA is used to assess IVDs, a minimum of 6 distributions p.a. is advisable (BS EN 14136). Apart from rare diseases, Weqas' programmes are bimonthly as a minimum. For core tests, the distribution (or challenge) frequency is monthly.
Clinically relevant range and number of samples	Weqas provides "blinded", commutable samples wherever possible with additional challenging samples and linear panels to assess method linearity, specificity and sensitivity.
Clinically relevant performance specification	Weqas uses Milan Model 2 performance specification whenever appropriate: based on biological variation data.
Programme designed and overseen by appropriately competent professionals	Weqas' Director has over 40 years experience in Laboratory Medicine and is supported by a team of Clinical Scientists and an Independent Scientific Advisory group.
Education	Training and helpline support. Pre-analytical, Analytical and Post-analytical education.
Reporting to Professional body / Regulatory body	Reporting to professional body within the UK, with mechanisms in place for identification and reporting of persistent poor performance issues.
Post-marketing surveillance	Weqas liaises with laboratories, manufacturers, professional bodies, regulatory and competent authorities.
Independent	Weqas is a "not for profit" NHS organisation and is not affiliated to an IVD manufacturer.

\*James D, Ames D, Lopez B, et al. External Quality Assessment : Best practice. J Clin Pathol 2014;67:651.





# Laboratory EQA

## Serum Chemistry

**Frequency:** Monthly

**Samples:** 4 x 3.0 mL or 4 x 1.0 mL

**Material:** Off the clot human serum

**Key features:** Liquid human serum samples requiring no prior preparation. Samples consist of a panel of 8 linearly related samples distributed on a number of occasions over that period which are used to assess both laboratory and method performance, including linearity, bias, within and between batch imprecision. Trueness is also assessed for a number of analytes using high metrological order Reference measurement systems.

Traceable Reference Values provided for electrolytes and metabolites. Includes calculated parameters.

Additional challenging samples distributed to assess diagnostic accuracy near the cut points, method interferences and for educational purposes. Sigma metric scoring based on clinically relevant Milan Model 2 performance specification.

Analyte	Approx. Range Covered
Sodium	100 – 165 mmol/L
Potassium	1.6 – 8.0 mmol/L
Chloride	73 – 123 mmol/L
Bicarbonate	7 – 28 mmol/L
Urea	1.5 – 25 mmol/L
Creatinine	25 – 600 µmol/L
e-GFR	<15 – >90 mls/min/1.73m <sup>2</sup>
Glucose	1.4 – 25 mmol/L
Calcium	1.2 – 3.3 mmol/L
Adjusted Calcium	1.4 – 3.0 mmol/L
Phosphate	0.2 – 2.2 mmol/L
Total Protein	34 – 86 g/L
Albumin	20 – 53 g/L
Calculated Globulin	20 – 40 g/L
Magnesium	0.2 – 2.0 mmol/L
Urate	100 – 700 µmol/L
Lithium	0.05 – 2.0 mmol/L
Lipase	10 – 400 IU/L
Osmolality	190 – 390 mmol/kg
AST	5 – 300 IU/L IFCC
ALT	5 – 500 IU/L IFCC
ALP	25 – 400 IU/L SCE
CK	20 – 1200 IU/L SCE
Gamma GT	10 – 400 IU/L SCE
Total Amylase	15 – 800 IU/L
Pancreatic Amylase	20 – 160 IU/L
LDH	50 – 700 IU/L SCE
Iron	7 – 30 µmol/L
TIBC	28 – 82 µmol/L
Transferrin	1.5 – 3.5 g/L
Transferrin Saturation	22 – 30 %
Gentamicin	1 – 8 µg/mL

## HIL Serum Indices

**Frequency:** Monthly

**Samples:** 3 x 1.0 mL

**Material:** Off the clot human serum

**Key features:** Liquid human serum samples with known concentration of haemoglobin, bilirubin and triglyceride added to assess performance of haemolysis, icteric and lipaemic indices on all major platforms. Caters for both quantitative and qualitative results.

Analyte	Approx. Range Covered
Semi-Quantitative Haemolysis Index	0 – 3.5 g/L as Hb
Semi-Quantitative Icterus Index	0 – 500 µmol/L as Total Bilirubin
Semi-Quantitative Lipaemic Index	0 – 10 mmol/L as Intralipid Triglyceride
Qualitative Haemolysis Index	Negative to +++ Positive
Qualitative Icterus Index	Negative to +++ Positive
Qualitative Lipaemic Index	Negative to +++ Positive

Analyte	Approx. Range Covered	
Cholesterol	2.5 – 9.5	mmol/L
Triglyceride	0.3 – 7.0	mmol/L
HDL Cholesterol	0.6 – 2.5	mmol/L
LDL Cholesterol	1.0 – 6.0	mmol/L
Apolipoprotein A1	0.8 – 2.4	g/L
Apolipoprotein B	0.3 – 2.0	g/L
Lipoprotein (a)	5 – 300	nmol/L
Non-HDL Cholesterol	1.5 – 6.5	mmol/L

Analyte	Approx. Range Covered	
Total Bilirubin	30 – 350	µmol/L
Conjugated Bilirubin	10 – 100	µmol/L

Analyte	Approx. Range Covered	
Salicylate	0 – 800	mg/L
Paracetamol	0 – 350	mg/L
Ethanol	0 – 4500	mg/L
*Ethylene Glycol	0 – 3000	mg/L
*Methanol	0 – 2500	mg/L
Whole Blood Ethanol	0 – 4500	mg/L

Analyte	Approx. Range Covered	
hsTroponin I (hs-cTnI)	1 – 300	ng/L
EDTA hsTroponin I (EDTA hs-cTnI)	1 – 300	ng/L
hsTroponin T (hs-cTnT)	4 – 200	ng/L

## Lipids

**Frequency:** Monthly

**Samples:** 4 x 1.0 mL

**Material:** Off the clot human serum

**Key features:** Liquid human serum samples requiring no prior preparation. Commutable single or pooled donor samples. Lipid profile includes all routinely monitored analytes and calculated parameters. Programme assesses both laboratory and method performance, including bias, within and between batch imprecision. Trueness is also assessed for a number of analytes using high metrological order Reference measurement systems. IDGCMS and CDC reference values provided for Cholesterol, Triglyceride and HDL. Sigma metric scoring based on clinically relevant Milan Model 2 performance specification.

## Bilirubin

**Frequency:** Monthly

**Samples:** 4 x 1.0 mL

**Material:** Off the clot human serum

**Key features:** Liquid human serum samples. Panel of samples covering the pathological range for both conjugated and total bilirubin in neonates and adults. Samples assess both laboratory and method performance, including linearity, bias, within and between batch imprecision. Suitable for Laboratory analysers, Blood Gas analysers and POCT devices.

## ED Toxicology

**Frequency:** Monthly

**Samples:** 4 x 1.0 mL  
4 x 0.5 mL Whole Blood Ethanol

**Material:** Off the clot human serum and whole blood

**Key features:** Liquid human serum samples. Linearly related panel covering the analytical and Toxic pathological range. Samples assess both laboratory and method performance, including linearity, bias, within and between batch imprecision. Challenging samples at clinically relevant cut-off concentrations.

## hsTroponin

**Frequency:** Monthly

**Samples:** 3 x 1.0 mL

**Material:** Off the clot human serum and EDTA plasma

**Key features:** Includes challenging samples at limits of detection and diagnostic “99th centile” for hs TnT and TnI. Liquid human serum samples require no pre-analytical preparation. Linearly related panel covering a clinically relevant range.

\* Not Accredited

# Urine Chemistry

**Frequency:** Monthly

**Samples:** 3 x 2.5 mL + 3 x 0.5 mL acidified

**Material:** Fresh filtered human urine

**Key features:** Fresh endogenous and spiked urine samples distributed. Separate 1mL acidified samples supplied for Calcium, Magnesium and Phosphate for enhanced stability. Samples assess both laboratory and method performance, including linearity, bias, within and between batch imprecision.

Analyte	Approx. Range Covered
Sodium	13 – 200 mmol/L
Potassium	9 – 137 mmol/L
Chloride	13 – 300 mmol/L
Urea	38 – 500 mmol/L
Creatinine	1.0 – 22 mmol/L
Glucose	0 – 40 mmol/L
Calcium	0.5 – 7.0 mmol/L
Phosphate	6 – 35 mmol/L
Protein	0 – 2 g/L
Albumin	0 – 2000 mg/L
Magnesium	0.5 – 8.5 mmol/L
Urate	0.5 – 5.0 mmol/L
Osmolality	100 – 1000 mmol/kg
Total Amylase	0 – 400 IU/L
Albumin/Creatinine ratio	0 – 200 mg/mmol
Protein/Creatinine ratio	0 – 300 mg/mmol

# Endocrine

**Frequency:** Monthly

**Samples:** 4 x 1.8 mL

**Material:** Off the clot human serum

**Key features:** Liquid human serum samples requiring no prior preparation. Single donor samples are used wherever possible to minimise any matrix effects. Programme assesses both laboratory and method performance, including bias, within and between batch imprecision. Trueness is also assessed for Testosterone, Cortisol and Progesterone using high metrological order Reference measurement systems. Challenging samples are distributed to assess the performance at clinical decision points as well as ongoing programme of interpretative exercises, Macroprolactin and antibody interferences. Includes Calculated parameters.

Analyte	Approx. Range Covered
Cortisol	60 – 1450 nmol/L
Progesterone	1.0 – 100 nmol/L
Oestradiol	37 – 16000 pmol/L
Testosterone	0.1 – 60 nmol/L
Free Testosterone	0 – 2 mol/L
SHBG	20 – 100 nmol/L
FAI	0 – 150 %
DHEA-S	0 – 100 µmol/L
T4	64 – 280 nmol/L
T3	1.5 – 12 nmol/L
FT4	8 – 50 pmol/L
FT3	3.0 – 40 pmol/L
TSH	0.1 – 55 mU/L
LH	2 – 80 IU/L
FSH	0.8 – 100 IU/L
Prolactin	48 – 800 mU/L

# Haematinics

**Frequency:** Monthly

**Samples:** 4 x 1.0 mL

**Material:** Off the clot human serum

**Key features:** Liquid human serum samples requiring no prior preparation. Commutable, endogenous samples, covering the physiological and pathological range with additional spiked samples to cover “toxic” range for Iron. Programme assesses both laboratory and method performance, including bias, within and between batch imprecision.

Analyte	Approx. Range Covered
Ferritin	5 – 3500 µg/L
B12	120 – 850 ng/L
Active B12	0 – 300 pmol/L
Folate	1.2 – 24 µg/L
Iron	4 – 160 µmol/L
TIBC	27 – 90 µmol/L
UIBC	3 – 100 µmol/L
Transferrin	1.6 – 4 g/L
Transferrin Saturation	10 – 90 %

## Blood Gas

**Frequency:** Monthly

**Samples:** 3 x 2.5 mL

**Material:** Tonometered protein buffered aqueous solution and whole blood

**Key features:** Aqueous material minimises the risk of pre-analytical error sampling due to its protein foam layer. Wide clinical range covered over the course of the year.  $iCa^{++}$  concentration is suitable for the evaluation of instruments used in the monitoring of patients on citrate anticoagulation for Continuous Renal Replacement Therapy (CRRT). Programme assesses both laboratory and method performance, including bias, within and between batch imprecision. Once a year, tonometered whole blood is distributed. This material has identical oxygen saturation characteristics to fresh whole blood and is used to provide an assessment of accuracy for  $pO_2$  (especially at low  $pO_2$ ) and in the evaluation of derived parameters (SBC, BE and Oxygen Saturation). The hemoglobin buffering in this material provides a 10-minute open ampule stability. Both materials are suitable for use for the majority of POCT and Laboratory analysers.

Analyte	Approx. Range Covered
pH	7.0 – 7.7
Hydrogen ion ( $cH^+$ )	20 – 100 nmol/L
Carbon dioxide partial pressure ( $pCO_2$ )	2 – 10 kPa
Oxygen partial pressure ( $pO_2$ )	4 – 25 kPa
Actual Bicarbonate ( $cHCO_3^-$ , $aHCO_3^-$ )	20 – 30 mmol/L
Total Carbon dioxide (TCO <sub>2</sub> )	15 – 35 mmol/L
Sodium ( $cNa^+$ )	115 – 160 mmol/L
Potassium ( $cK^+$ )	2 – 6 mmol/L
Chloride ( $cCl^-$ )	76 – 123 mmol/L
Magnesium ( $cMg^{++}$ )	0.4 – 1.6 mmol/L
Ionized Calcium ( $cCa^{2+}$ , $iCa^{++}$ )	0.2 – 1.8 mmol/L
Glucose ( $cGlu$ )	1.9 – 23.0 mmol/L
Lactate ( $cLac$ )	0.3 – 6.5 mmol/L
Urea	2.8 – 25.0 mmol/L
Creatinine ( $cCrea$ )	30 – 560 $\mu$ mol/L
Haematocrit (cHt)	0 – 70 %PCV
Lithium ( $cLi^+$ )	0.35 – 1.35 mmol/L
Standard Bicarbonate (SBC, $stHCO_3^-$ )	20 – 30 mmol/L
Base Excess (BE)	-5 to +5
Oxygen saturation ( $sO_2$ )	90 – 100 %

## Co-oximetry

**Frequency:** Monthly

**Samples:** 3 x 2.0 mL

**Material:** Bovine haemolysate solution

**Key features:** Packaged in an easy to use dual-chambered vial that separates the oxyhemoglobin from methemoglobin to enhance stability. Material contains the 4 major haemoglobin derivatives and Bilirubin. Compatible with all major Co-oximeters. Panel covers clinically relevant ranges. Programme assesses both laboratory and method performance, including bias, within and between batch imprecision.

Analyte	Approx. Range Covered
Total Haemoglobin (ctHB)	100 – 190 g/L
Carboxyhaemoglobin (FCOHb)	1 – 32 %
Methaemoglobin (FMetHb)	2 – 35 %
Oxyhaemoglobin ( $FO_2Hb$ )	35 – 95 %
Oxygen saturation ( $sO_2$ )	90 – 100 %
<i>Annual assessment</i>	
Bilirubin (ctBil)	0 – 100 $\mu$ mol/L

Analyte	Approx. Range Covered
NT-Pro BNP	20 – 4000 ng/L

## NT-Pro BNP

**Frequency:** Bimonthly

**Samples:** 3 x 0.5 mL

**Material:** Human Plasma (EDTA / LiHep)

**Key features:** The base material for BNP is human EDTA plasma and for NT-Pro BNP Lithium Heparin plasma to correctly reflect the performance with patient samples. To enhance the range the plasma is spiked with recombinant human BNP-32 and NT-Pro BNP respectively with the addition of Protease inhibitors to improve stability. For BNP the samples are dispatched frozen. Surrogate, clinically appropriate linear panels suitable for both Laboratory and POCT analysers. Programme assesses both laboratory and method performance, including bias, within and between batch imprecision and linearity.

# HbA1c for Diagnosis

**Frequency:** Monthly / Bimonthly

**Samples:** 3 x 0.2 mL / 2 x 0.2 mL

**Material:** Fresh EDTA whole blood

**Key features:** Fresh EDTA whole blood from individual diabetic patients and healthy volunteers are distributed monthly/bimonthly. These samples reflect the wide range of HbA1c seen in the screening, diagnosis and monitoring of Diabetes. Challenging samples from patients with known Hb variants are also distributed to assess current practice. Programme assesses both laboratory and method performance, including bias, within and between batch imprecision. Trueness is assessed using the IFCC secondary reference methods. Additional samples are distributed annually as part of the European HbA1c Trial to assess the performance across all countries and all manufacturers. The full report is provided as part of the programme.

# POCT Healthchecks (HbA1c & Lipids)

**Frequency:** Monthly / Bimonthly

**Samples:** 1 x 0.2 mL or 2 x 0.2 mL

**Material:** Fresh EDTA whole blood

**Key features:** Whole blood samples are collected from healthy volunteers and patients with Type II Diabetes. Samples cover non-diabetic, at risk, diagnostic, pathological and analytical ranges. Scoring based on Milan Model 3 performance specification. Programme assesses both laboratory and method performance, including trueness, bias, within and between batch imprecision. Trueness is assessed using the IFCC secondary reference methods.

# CRP

**Frequency:** Monthly

**Samples:** 3 x 0.5 mL

**Material:** Off the clot human serum

**Key features:** Commutable, endogenous samples and samples spiked with a highly purified source of human CRP to provide extended range. Endogenous samples covers high sensitivity (hs) CRP methods for cardiovascular risk assessment and enhanced range panel covers CRP methods used as an inflammatory marker. Programme assesses both laboratory and method performance, including bias, within and between batch imprecision and linearity.

Analyte	Approx. Range Covered
<sup>x</sup> HbA1c	32 – 85 mmol/mol Hb

Analyte	Approx. Range Covered
<sup>x</sup> HbA1c	32 – 85 mmol/mol Hb
Cholesterol	2.5 – 7.0 mmol/L
HDL Cholesterol	0.4 – 2.0 mmol/L
Triglycerides	0.5 – 7.0 mmol/L
Non-HDL Cholesterol (calculated)	1.5 – 6.5 mmol/L
LDL Cholesterol (calculated)	1.0 – 5.0 mmol/L

Analyte	Approx. Range Covered
hsCRP	0 – 10 mg/L
CRP	0 – 300 mg/L

<sup>x</sup> IFCC and NGSP values assigned by the European Reference Laboratory for Glycohaemoglobin.

Analyte	Approx. Range Covered
Total Bile Acids	5 – 108 $\mu\text{mol/L}$
Cholic Acid	0 – 83 $\mu\text{mol/L}$
Deoxycholic Acid	0 – 25 $\mu\text{mol/L}$

## Bile Acids

**Frequency:** Monthly

**Samples:** 3 x 0.5 mL

**Material:** Off the clot human serum

**Key features:** Panel of liquid human serum samples covering an appropriate range for the diagnosis and monitoring of Cholestasis in Pregnancy. Ratio of Bile Acids in the samples reflect both physiological levels and that observed in obstetric cholestasis. ID-GCMS target values available for individual Bile Acids, Cholic acid and Deoxycholic acid. Challenging samples are also distributed to assess specificity of the methods including those containing Chenodeoxycholic acid and Ursodeoxycholic, a dihydroxycholic bile acid used in the treatment of cholestatic disease. Programme assesses laboratory and method performance, including bias, within and between batch imprecision, linearity, trueness and specificity.

Analyte	Approx. Range Covered
Ammonia	25 – 800 $\mu\text{mol/L}$

## Ammonia

**Frequency:** Monthly

**Samples:** 3 x 0.5 mL

**Material:** Off the clot human serum

**Key features:** A range of Ammonia samples are distributed covering both normal and pathological levels including those seen in urea cycle defects. Liquid human serum, commutable and compatible with all enzymatic methods assayed on laboratory analysers, dry slide chemistry analysers and POCT devices. Programme assesses laboratory and method performance, including bias, within and between batch imprecision and linearity.

Analyte	Approx. Range Covered
Porphobilinogen	0 – 170 $\mu\text{mol/L}$
PBG / Creatinine Ratio	0 – >30 $\mu\text{mol/mmol}$
Total Urine Porphyrin (TUP)	0 – 4000 $\text{nmol/L}$
TUP / Creatinine Ratio	0 – >500 $\text{nmol/mmol}$
Plasma Porphyrin	8 – 300 $\text{nmol/L}$
Faecal Porphyrin	35 – 700 $\text{nmol/g}$
Clinical case interpretation	

## Porphyrin

**Frequency:** Quarterly

**Samples:** 3 x 4.2 mL Urine  
3 x 1.5 mL Plasma

**Material:** Fresh filtered human urine, EDTA plasma, faeces

**Key features:** Covers both Qualitative and Quantitative assays for Porphobilinogen, Total Urine Porphyrin and Plasma Porphyrins. Regular educational exercises include Interpretive comments, Audit and clinical case studies. Reference target value assignment, EDTA plasma patient samples, faecal samples and clinical case interpretation are provided by the Cardiff Porphyrin Service. Challenging samples at or near diagnostic cut points distributed. Programme assesses both laboratory and method performance, including bias and within batch imprecision.

# Quantitative Faecal Hb

**Frequency:** Monthly

**Samples:** 3

**Material:** Organic material spiked with human whole blood

**Key features:** Material closely mirrors the basic constituents of human faeces. FIT samples are pre loaded into buffered collection tubes specific to each instrument. Covers the pathological and analytical range for quantitative FIT automated analysers. Samples challenging clinically relevant cut-offs for symptomatic testing pathways.

# Urine Oxalate & Citrate

**Frequency:** Monthly

**Samples:** 3 x 2.5 mL

**Material:** Filtered and acidified human urine

**Key features:** This programme is designed to span the analytical and clinically relevant range for the diagnosis and management of hyperoxaluria and hypocitraturia. The linearly related samples are distributed on a number of occasions over the year to assess both laboratory and method performance, including linearity, bias, within and between batch imprecision.

# Pregnancy Testing

**Frequency:** Bimonthly

**Samples:** 2 x 1.0 mL Urine  
3 x 1.0 mL Serum

**Material:** Filtered urine from pregnant and non-pregnant volunteers. Off the clot human serum

**Key features:** Suitable for manual or automated lateral flow methods. Increased volume dispensed into wide neck tubes available for those using lateral flow dip stick assays. Participants can submit both quantitative and qualitative results. Challenging samples at or near lower limits of detection/Ag excess to assess sensitivity and Hook effect. Programme assess both laboratory and method performance, including, sensitivity, interferences, bias, within and between batch imprecision.

# Pre-Eclampsia

**Frequency:** Monthly

**Samples:** 3 x 0.5 mL

**Material:** Human EDTA plasma / serum

**Key features:** Samples cover analytical and clinical range for sFlt-1 & PIGF. Post - analytical interpretation of pre-eclampsia risk outcome also assessed. Samples suitable for Lab and POCT applications. Endogenous samples from patients along with a panel of linearly related samples produced from donations from healthy volunteers spiked with PIGF and sFlt-1. The linearly related samples are distributed on a number of occasions over the year to assess both laboratory and method performance, including linearity, bias, within and between batch imprecision.

Analyte	Approx. Range Covered
Quantitative FIT	2 – 480 µg Hb/g matrix

For quantitative tests - Programme assesses both laboratory and method performance, including, sensitivity, bias, within batch imprecision.

Analyte	Approx. Range Covered
Oxalate	0.1 – 1.8 mmol/L
Citrate	0.1 – 8.5 mmol/L

Analyte	Approx. Range Covered
Urine hCG	0 – 100,000 IU/L
Serum hCG	5 – 120,000 IU/L

Analyte	Approx. Range Covered
sFlt-1	60 – 10,000 pg/mL
PIGF	<12 – 900 pg/mL
sFlt-1/PIGF Ratio	0 – 700
Pre-Eclampsia Risk	Qualitative Interpretation

Analyte	Approx. Range Covered
Serum ACE	10 – 110 IU/L

## Serum ACE

**Frequency:** Bimonthly

**Samples:** 3 x 0.5 mL

**Material:** Off the clot human serum

**Key feature:** Commutable, single donor patient samples. Each donation is distributed on a number of occasions over the year to assess both laboratory and method performance, including bias, within and between batch imprecision.

Analyte	Approx. Range Covered
Amphetamine	0 – 3000 µg/L
Amphetamines Group Screen	Qualitative n/a
Benzodiazepines	0 – 1000 µg/L
Barbiturates	0 – 1000 µg/L
Buprenorphine	0 – 30 µg/L
Cocaine	0 – 1000 µg/L
Cannabis	0 – 400 µg/L
EDDP	0 – 1000 µg/L
Heroin	0 – 30 µg/L
Ketamine	0 – 3000 µg/L
MDMA	0 – 3000 µg/L
Methadone	0 – 1000 µg/L
Methamphetamine (mAMP)	0 – 3000 µg/L
Opiates (Morphine)	0 – 1000 µg/L
Phencyclidine (PCP)	0 – 75 µg/L
Tricyclic antidepressants (TCA)	0 – 3000 µg/L

## Urine Drugs of Abuse

**Frequency:** Bimonthly

**Samples:** 3 x 3.0 mL

**Material:** Fresh filtered urine with 1° and 2° metabolites added

**Key feature:** Samples includes different panels of drug / metabolites. Linear samples cover analytical and clinically relevant ranges including at or near lower limit of detection for qualitative methods. Suitable for qualitative and quantitative results. Traceable, “gravimetric” concentration of metabolite and 1° drug. Programme assesses both laboratory and method performance, including, linearity (recovery to gravimetric), specificity, bias, within and between batch imprecision.

Analyte	Approx. Range Covered
Homocysteine	5 – 220 µmol/L

## Homocysteine

**Frequency:** Bimonthly

**Samples:** 3 x 0.5 mL

**Material:** Off the clot human serum

**Key features:** Liquid human serum samples with a range of concentrations found in both inborn errors and cardiovascular risk assessment. Endogenous samples along with a panel of linearly related samples produced from donations from healthy volunteers spiked with homocysteine. The linearly related samples are distributed on a number of occasions over the year to assess both laboratory and method performance, including linearity, bias, within and between batch imprecision.

## Renal Calculi

**Frequency:** Bimonthly

**Samples:** 4 x 100-150 mg

**Material:** Dry powdered chemical or ground human calculi

**Key features:** Ready to use, stable samples, covering common and rare calculi constituents. Qualitative and Quantitative analysis. Suitable for spectroscopy and wet chemistry methods.

# Therapeutic Drug Monitoring (TDM)

**Frequency:** Monthly

**Samples:** 3 x 1.0 mL

**Material:** Off the clot human serum

**Key features:** Linear panel with known traceable “gravimetric, weighed in” concentration of drug. Programme assesses both laboratory and method performance, including, sensitivity, specificity, linearity (recovery to gravimetric), bias, within and between batch imprecision.

Analyte	Approx. Range Covered
Amikacin	0 – 25 mg/L
Carbamazapine	0 – 12 mg/L
Digoxin	0 – 3 µg/L
Gentamicin	0 – 5 mg/L
Lithium	0 – 2.0 mmol/L
Methotrexate	0 – 1.0 µmol/L
Phenobarbital	0 – 40 mg/L
Phenytoin	0 – 25 mg/L
Teicoplanin	0 – 60 mg/L
Theophylline	0 – 20 mg/L
Tobramycin	0 – 10 mg/L
Valproic acid	0 – 125 mg/L
Vancomycin	0 – 30 mg/L

## \*Whole Blood Immunosuppressants

\* Separate Whole Blood samples can also be provided for the Immunosuppressant drugs: Ciclosporin, Sirolimus and Tacrolimus. Please contact us for further information to check on the availability of these samples.

# Procalcitonin

**Frequency:** Monthly

**Samples:** 3 x 0.5 mL

**Material:** Off the clot human serum

**Key features:** Samples provided to cover range of Procalcitonin concentrations seen in both LRTI and systemic bacterial infection or severe sepsis. Samples suitable for Lab and POCT instruments. Endogenous samples along with a panel of linearly related samples produced from donations from healthy volunteers spiked with procalcitonin. The linearly related samples are distributed on a number of occasions over the year to assess both laboratory and method performance, including linearity, bias, within and between batch imprecision.

Analyte	Approx. Range Covered
Procalcitonin	0 – 100 ng/mL

# pH Meter

**Frequency:** Monthly

**Samples:** 3 x 10.0 mL

**Material:** Buffered aqueous solutions

**Key features:** Samples are supplied ready to use; no pre-analytical preparation required. Suitable for assessing pH Meter performance across a number of laboratory applications e.g clinical applications in urine / fluids and for general laboratory applications for buffers and reagents. Programme assesses both laboratory and meter performance, including, linearity, bias, within and between batch imprecision.

Analyte	Approx. Range Covered
pH	2.0 – 12.0



# POCT EQA

## POCT Glucose & Ketones

**Frequency:** Monthly, Bimonthly or Quarterly

**Samples:** 1 x 0.5 mL

**Material:** Red dyed serum or plasma

**Key features:** Ready to use liquid samples in sterile dropper vials containing both glucose and ketones. Suitable for all glucose Meters. Sites or individual users can be assessed. POCT Co-ordinator summary reports. Simple traffic light reports for end users.

## POCT Urinalysis

**Frequency:** Bimonthly

**Samples:** 1 x 5.0 mL

**Material:** Fresh filtered human urine

**Key features:** Material is commutable with all Urinalysis strips and meters. Both quantitative, semiquantitative and qualitative results accommodated. Qualitative drop down fields on website customised for each instrument / strip. Separate sub-programme for quantitative microalbumin, and Albumin/ creatinine ratio.

## Bilirubin

**Frequency:** Monthly

**Samples:** 4 x 1.0 mL

**Material:** Off the clot human serum

**Key features:** Liquid human serum samples. Panel of samples covering the pathological range for both conjugated and total bilirubin in neonates and adults. Samples assess both laboratory and method performance, including linearity, bias, within and between batch imprecision. Suitable for Laboratory analysers, Blood Gas analysers and POCT devices.

## POCT INR

**Frequency:** Bimonthly

**Samples:** 1 x 0.3 mL

**Material:** Liquid stable biological samples suitable for use on a wide range of devices

**Key features:** Samples are supplied ready to use, no pre-analytical preparation is required.

Analyte	Approx. Range Covered
Glucose	2.0 – 30 mmol/L
Ketones	0.6 – 6.0 mmol/L

Analyte	Approx. Range Covered
Glucose	0 – 60 mmol/L
Ketones	0 – 20 mmol/L
Protein	0 – 5 g/L
Haemoglobin (Blood)	0 – 7500 µg/L
Specific Gravity	1.005 – 1.020
pH	6 – 8
Bilirubin	0 – 50 µmol/L
Urobilinogen	0 – 200 µmol/L
Leucocytes	0 – 500 µl esterase/L
Nitrites	0 – 40 µmol/L
Albumin/Creatinine	0.8 – 78 mg/mmol
Urine Albumin (Microalbumin)	0 – 200 mg/L
Creatinine	1 – 22 mmol/L

Analyte	Approx. Range Covered
Total bilirubin	30 – 350 µmol/L
Conjugated bilirubin	10 – 100 µmol/L

Analyte	Approx. Range Covered
INR	1 – 4.5 Units

## Blood Gas

Analyte	Approx. Range Covered
pH	7.0 – 7.7
Hydrogen ion ( $cH^+$ )	20 – 100 nmol/L
Carbon dioxide partial pressure ( $pCO_2$ )	2 – 10 kPa
Oxygen partial pressure ( $pO_2$ )	4 – 25 kPa
Actual Bicarbonate ( $cHCO_3^-$ , $aHCO_3^-$ )	20 – 30 mmol/L
Total Carbon dioxide ( $TCO_2$ )	15 – 35 mmol/L
Sodium ( $cNa^+$ )	115 – 160 mmol/L
Potassium ( $cK^+$ )	2 – 6 mmol/L
Chloride ( $cCl^-$ )	76 – 123 mmol/L
Magnesium ( $cMg^{++}$ )	0.4 – 1.6 mmol/L
Ionized Calcium ( $cCa^{2+}$ , $iCa^{++}$ )	0.2 – 1.8 mmol/L
Glucose ( $cGlu$ )	1.9 – 23.0 mmol/L
Lactate ( $cLac$ )	0.3 – 6.5 mmol/L
Urea	2.8 – 25.0 mmol/L
Creatinine ( $cCrea$ )	30 – 560 $\mu$ mol/L
Haematocrit ( $cHt$ )	0 – 70 %PCV
Lithium ( $cLi^+$ )	0.35 – 1.35 mmol/L
Standard Bicarbonate (SBC, $stHCO_3^-$ )	20 – 30 mmol/L
Base Excess (BE)	-5 to +5
Oxygen saturation ( $sO_2$ )	90 – 100 %

**Frequency:** Bimonthly

**Samples:** 3 x 2.5 mL

**Material:** Tonometered protein buffered aqueous solution and whole blood

**Key features:** Aqueous material minimises the risk of pre-analytical error sampling due to its protein foam layer. Wide clinical range covered over the course of the year.  $iCa^{++}$  concentration is suitable for the evaluation of instruments used in the monitoring of patients on citrate anticoagulation for Continuous Renal Replacement Therapy (CRRT). Programme assesses both laboratory and method performance, including bias, within and between batch imprecision. Once a year, tonometered whole blood is distributed. This material has identical oxygen saturation characteristics to fresh whole blood and is used to provide an assessment of accuracy for  $pO_2$  (especially at low  $pO_2$ ) and in the evaluation of derived parameters (SBC, BE and Oxygen Saturation). The hemoglobin buffering in this material provides a 10-minute open ampule stability. Both materials are suitable for use for the majority of POCT and Laboratory analysers.

## Co-oximetry

Analyte	Approx. Range Covered
Total Haemoglobin (ctHB)	100 – 190 g/L
Carboxyhaemoglobin (FCOHb)	1 – 32 %
Methaemoglobin (FMetHb)	2 – 35 %
Oxyhaemoglobin ( $FO_2Hb$ )	35 – 95 %
Oxygen saturation ( $sO_2$ )	90 – 100 %
<i>Annual assessment</i>	
Bilirubin (ctBil)	0 – 100 $\mu$ mol/L

**Frequency:** Bimonthly

**Samples:** 3 x 2.0 mL

**Material:** Bovine haemolysate solution

**Key features:** Packaged in an easy to use dual-chambered vial that separates the oxyhemoglobin from methemoglobin to enhance stability. Material contains the 4 major haemoglobin derivatives and Bilirubin. Compatible with all major Co-oximeters. Panel covers clinically relevant ranges. Programme assesses both laboratory and method performance, including bias, within and between batch imprecision.

Analyte	Approx. Range Covered
Urine hCG	0 – 100 000 IU/L
Serum hCG	5 – 120 000 IU/L

## Pregnancy Testing

**Frequency:** Bimonthly

**Samples:** 2 x 1.0 mL Urine  
3 x 1.0 mL Serum

**Material:** Filtered urine from pregnant and non-pregnant volunteers. Off the clot human serum

**Key features:** Suitable for manual or automated lateral flow methods. Increased volume dispensed into wide neck tubes available for those using lateral flow dip stick assays. Participants can submit both quantitative and qualitative results. Challenging samples at or near lower limits of detection/ Ag excess to assess sensitivity and Hook effect. Programme assess both laboratory and method performance, including, sensitivity, interferences, bias, within and between batch imprecision.

# Fetal Fibronectin

**Frequency:** Bimonthly

**Samples:** 2 x 0.5 mL

**Material:** Synthetic Amniotic Fluid containing purified fFN

**Key features:** Liquid stable samples are supplied ready to use; no pre-analytical preparation is required. Qualitative and Quantitative reporting available, with interpretations based on cut-offs of 50 and 200 ng/mL (EQUiPP study 2014). Linear related panel distributed covering the clinically relevant range. Programme assesses both site and device performance, including bias, within and between batch imprecision and linearity.

Analyte	Approx. Range Covered
Quantitative fFN	0 – 400 ng/mL
Qualitative fFN	Negative / Positive

# phIGFBP-1

**Frequency:** Bimonthly

**Samples:** 2 x 1.0 mL

**Material:** Synthetic Amniotic Fluid containing semi-purified IGFBP-1

**Key features:** Liquid stable samples are supplied ready to use; no pre-analytical preparation is required. Linear related panel distributed covering the clinically relevant range. Programme assesses both site and device performance, including bias, within and between batch imprecision and linearity.

Analyte	Approx. Range Covered
phIGFBP-1	Negative / Positive

# PAMG-1\*

**Frequency:** Bimonthly

**Samples:** 2 x 0.5 mL

**Material:** Synthetic Amniotic fluid containing purified PAMG-1

**Key features:** Liquid stable samples are supplied ready to use; no pre-analytical preparation is required. Linear related panel distributed covering the clinically relevant range. Programme assesses both site and device performance, including bias, within and between batch imprecision and linearity.

Analyte	Approx. Range Covered
PAMG-1	Negative / Positive

# POCT PROM

**Frequency:** Bimonthly

**Samples:** 2 x 1.0 mL

**Material:** Synthetic Amniotic fluid containing semi-purified IGFBP-1

**Key features:** Liquid stable samples are supplied ready to use; no pre-analytical preparation is required. Linear related panel distributed covering the clinically relevant range. Programme assesses both site and device performance, including bias, within and between batch imprecision and linearity.

Analyte	Approx. Range Covered
IGFBP-1	Negative / Positive

\* Not Accredited

Analyte	Approx. Range Covered
Cholesterol	3.0 – 8.0 mmol/L
Triglycerides	0.8 – 2.5 mmol/L
HDL	0.6 – 3.0 mmol/L
Glucose	5 – 20 mmol/L

Analyte	Approx. Range Covered
Haemoglobin	38 – 200 g/L

Analyte	Approx. Range Covered
<sup>x</sup> HbA1c	32 – 85 mmol/mol Hb

Analyte	Approx. Range Covered
<sup>x</sup> HbA1c	32 – 85 mmol/mol Hb
Cholesterol	2.5 – 7.0 mmol/L
HDL Cholesterol	0.4 – 2.0 mmol/L
Triglycerides	0.5 – 7.0 mmol/L
Non-HDL Cholesterol (calculated)	1.5 – 6.5 mmol/L
LDL Cholesterol (calculated)	1.0 – 5.0 mmol/L

## POCT Lipids

**Frequency:** Monthly / Bimonthly

**Samples:** 1 x 0.5 mL

**Material:** Off the clot human serum & Whole Blood

**Key features:** Patient samples covering normal and pathological ranges. Human serum samples require no preparation, reducing risk of pre-analytical error. Additional assessment of accuracy using whole blood samples.

## POCT Haemoglobin

**Frequency:** Bimonthly

**Samples:** 2 x 1.0 mL

**Material:** Purified bovine haemolysate

**Key features:** Ready to use samples in dropper bottles, no need for reconstitution.

## HbA1c for Monitoring

**Frequency:** Monthly / Bimonthly

**Samples:** 2 x 0.2 mL

**Material:** Fresh EDTA whole blood

**Key features:** Fresh EDTA whole blood from individual diabetic patients and healthy volunteers are distributed monthly / bimonthly. These samples reflect the wide range of HbA1c seen in the screening, diagnosis and monitoring of Diabetes. Challenging samples from patients with known Hb variants are also distributed to assess current practice. Programme assesses both laboratory and method performance, including bias, within and between batch imprecision. Trueness is assessed using the IFCC secondary reference methods. Additional samples are distributed annually as part of the European HbA1c Trial to assess the performance across all countries and all manufacturers. The full report is provided as part of the programme.

## POCT Healthchecks (HbA1c & Lipids)

**Frequency:** Monthly / Bimonthly

**Samples:** 1 x 0.2 mL or 2 x 0.2 mL

**Material:** Fresh EDTA whole blood

**Key features:** Whole blood samples are collected from healthy volunteers and patients with Type II Diabetes. Samples cover non-diabetic, at risk, diagnostic, pathological and analytical ranges. Scoring based on Milan Model 3 performance specification. Programme assesses both laboratory and method performance, including trueness, bias, within and between batch imprecision. Trueness is assessed using the IFCC secondary reference methods.

<sup>x</sup> IFCC and NGSP values assigned by the European Reference Laboratory for Glycohaemoglobin.

## POCT HIV

**Frequency:** Bimonthly

**Samples:** 3 x 0.5 mL

**Material:** Off the clot human serum

**Key features:** Samples are prepared with a non-infective source of recombinant HIV markers (p24 Ag, HIV Ab) to mimic different clinical presentations. Developed for 4th generation assays, the user's ability to identify both Ag and Ab are assessed.

## Urine Drugs of Abuse

**Frequency:** Bimonthly

**Samples:** 3 x 3.0 mL

**Material:** Fresh filtered urine with 1° and 2° metabolites added

**Key feature:** Samples includes different panels of drug / metabolites. Linear samples cover analytical and clinically relevant ranges including at or near lower limit of detection for qualitative methods. Suitable for qualitative and quantitative results. Traceable, "gravimetric" concentration of metabolite and 1° drug. Programme assesses both laboratory and method performance, including, linearity (recovery to gravimetric), specificity, bias, within and between batch imprecision.

## POCT Strep A\*

**Frequency:** Monthly

**Samples:** 3 x 1.0 mL

**Material:** Buffered material spiked with inactivated Streptococcus A

**Key features:** Stable liquid samples are supplied ready to use; no pre-analytical preparation is required. Suitable for both rapid antigen detection and nucleic acid detection devices. Wide range of bacterial loads covered.

## POCT D-Dimer

**Frequency:** Bimonthly

**Samples:** 3 x 1.0 mL

**Material:** Endogenous human samples

**Key features:** Samples are supplied ready to use, no pre-analytical preparation is required. Quantitative and qualitative reporting available. Programme assesses both laboratory and method performance, including bias, within and between batch imprecision and linearity.

Analyte	Approx. Range Covered
p24 Antigen	Negative / Positive
HIV Antibodies	Negative / Positive

Analyte	Approx. Range Covered
Amphetamine	0 – 3000 µg/L
Amphetamines Group Screen	Qualitative n/a
Benzodiazepines	0 – 1000 µg/L
Barbiturates	0 – 1000 µg/L
Buprenorphine	0 – 30 µg/L
Cocaine	0 – 1000 µg/L
Cannabis	0 – 400 µg/L
EDDP	0 – 1000 µg/L
Heroin	0 – 30 µg/L
Ketamine	0 – 3000 µg/L
MDMA	0 – 3000 µg/L
Methadone	0 – 1000 µg/L
Methamphetamine (mAMP)	0 – 3000 µg/L
Opiates (Morphine)	0 – 1000 µg/L
Phencyclidine (PCP)	0 – 75 µg/L
Tricyclic antidepressants (TCA)	0 – 3000 µg/L

Analyte	Approx. Range Covered
Streptococcus A	Negative / Positive

Analyte	Approx. Range Covered
Quantitative D-Dimer	100 – 4000 µg/L FEU
Qualitative D-Dimer	Negative / Positive

\* Not Accredited

Analyte	Approx. Range Covered
CRP	0 – 150 mg/L

### ROTEM / TEM

Test	Analyte
Extem	CT (Secs), A5 (mm), A10 (mm), ML (%)
Fibtem	CT (Secs), A5 (mm), A10 (mm), ML (%)
Heptem	CT (Secs), A10 (mm)
Intem	CT (Secs)

### TEG

Test	Analyte
CFF	A10, MA (mm)
CK	R (mins), K (mins), MA (mm)
CKH	R (mins), K (mins), MA (mm)
CRT	MA (mm), LY-30

Analyte	Approx. Range Covered
Creatinine	50 – 700 $\mu$ mol/L
e-GFR	<15 – >90 ml/min/1.73m <sup>2</sup>

Analyte	Approx. Range Covered
SARS-CoV-2 Ag (RNA)	Negative / Positive
Influenza A	Negative / Positive
Influenza B	Negative / Positive
RSV	Negative / Positive

Analyte	Approx. Range Covered
Troponin T	<1 – 10,000 ng/L
Troponin I	<1 – 40 $\mu$ g/L

## POCT CRP

**Frequency:** Bimonthly

**Samples:** 2 x 0.5 mL

**Material:** Off the clot human serum / plasma

**Key features:** Commutable, endogenous samples. Samples targeted at appropriate concentrations for antibiotic stewardship, covering a concentration range of 10 – 150 mg/L. Programme assesses both site and method performance, including bias, within and between batch imprecision and linearity.

## Viscoelastic Haemostasis\*

**Frequency:** Quarterly

**Samples per set:** 2 x 3.0 mL

**Material:** Lyophilised human plasma which may be enriched with unfractionated Heparin

**Methods:** Rotational Thromboelastometry (ROTEM) / Thromboelastometry (TEM) / Thromboelastography (TEG)

**Key features:** Working in collaboration with ECAT. Covers the analytes Extem, Intem, Fibtem, Heptem and Aptem.

## POCT Creatinine

**Frequency:** Bimonthly

**Samples:** 3 x 0.5 mL

**Material:** Lysed whole blood

**Key features:** Commutable material for whole blood POCT devices. No pre-analytical preparation is required.

## POCT Respiratory Virus\*

**Frequency:** Bimonthly

**Samples:** 2 x 1.0 mL

**Material:** Buffered material spiked with inactivated virus

**Key features:** Liquid stable samples are supplied ready to use; no pre-analytical preparation is required. Qualitative reporting for SARS-CoV-2 Ag (RNA), Influenza A, Influenza B and RSV available.

## POCT Cardiac

**Frequency:** Monthly

**Samples:** 3 x 0.5 mL

**Material:** EDTA Plasma

**Key features:** EDTA plasma samples require no pre-analytical preparation. Linearly related panel covering a clinically relevant range.

\* Not Accredited

# Additional Services

**W**eqas has a wealth of experience in providing quality assurance services for Point of Care users and understands that not all our clients' needs are the same. We therefore offer different levels of service to cater for the unique needs of our clients in Point of Care settings.

Our Fully Managed Service is designed for sites that do not have the support of a local laboratory Point of Care Department for performance oversight. Weqas will perform the tasks that are generally the remit of a Point of Care co-ordinator e.g. Registration of instruments and maintenance of the database on Weqas platforms, result entry, report issue and interpretation, poor performance management. We also offer a 'Data Entry only' service.

A dedicated helpline service provides clients with direct access to experienced personnel who can offer advice on method performance, interpretation and troubleshooting.

## Features



- ✓ Access to Weqas Web Portals
- ✓ Access to EQA Helpdesk (Mon to Fri, 09:00 to 17:00)
- ✓ EQA instrument registration maintained by Weqas staff
- ✓ Results entered by Weqas staff



- ✓ Samples individually packaged & shipped directly to each site (Shipping option 1)  
OR
- ✓ Samples shipped in bulk in a single package to POCT Lead for re-packaging and distribution (Shipping option 2)



- ✓ Individual reports sent to each location
- ✓ Performance reviewed by Weqas
- ✓ Overall summary report sent to POCT Lead with poor performance sites identified
- ✓ Non-returns report sent to POCT Lead
- ✓ Primary care governance leads notified of non-compliance and poor performance issues
- ✓ Repeat samples automatically dispatched free of charge to poor performing sites
- ✓ Repeat performance reviewed by Weqas and Primary care governance lead / POCT Lead sent an outcome report for poor performance sites
- ✓ Troubleshooting advice provided for poor performance

For a full list of analytes and programmes please see the "Quick Guide" on page 38-45.





# Education

**W**eqas has a wealth of experience in delivering training sessions tailored to suit the individual requirements of the customer. Weqas provides web-based e-learning, telephone or face-to-face training. A helpline service is also provided where participants can contact Weqas for advice on their method performance and interpretation of their EQA data. This troubleshooting and educational activity is an important part of the service.

## Annual Conference

A two day meeting in the form of scientific seminars, management seminars and EQA workshops are organised annually with additional ad hoc workshops. The annual meetings include current hot topics within Laboratory Medicine and provide participants the opportunity to exchange views, to engage with organisers and to discuss problems and strategies. Meetings are approved for CPD by both the IBMS and RCPATH. The EQA workshops cover statistical analysis, interpretation of EQA and problem solving through interactive case studies.

## EQA Workshops

Throughout the year Weqas also host small group EQA Workshops on both Laboratory and POCT programmes. These are aimed at delivering face-to-face training sessions where participants can gain a better understanding of report interpretation and are an excellent opportunity to troubleshoot and discuss any issues.

## POCT Training

A number of ad hoc POCT Training days are held throughout the year. The sessions provide essential tools for both POCT Co-ordinators and users to support a quality and safe service. Weqas' POCT training packages ensure that users have the correct knowledge, skills and competence in the delivery of POCT. Weqas will work with users and POCT co-ordinators to tailor the training to their needs. These are organised on request and can be delivered at the client's venue.

For more information on workshops or tailored training sessions please visit our website [www.weqas.com](http://www.weqas.com) or email [contact@weqas.com](mailto:contact@weqas.com).







# Tailored service

Our third party controls provide accurate, independent, unbiased, quality tools for use as part of your quality assurance process. CE marked Internal Quality Control (IQC) and Quality Control Reference Material (QCRM) can be assayed daily to provide confidence in your analytical testing. Our products are clinically relevant, value-added QC, expertly designed by a team of Clinical and Biomedical Scientists with over 20 years experience in manufacturing. Weqas also has the capability to produce bespoke IQC products tailored to your specific requirements.

## Examples of PoCT IQC

- Lipid Control Norm is an assayed quality control material which includes Cholesterol, HDL Cholesterol, Triglyceride and Glucose for use in Healthcheck programmes for monitoring the performance of POCT analysers. The material has been assayed using both laboratory and a range of POCT methods.
- Urine hCG Controls for POCT Pregnancy Testing are available as a negative and positive control. Samples are also available near the limit of detection of the methods to aid your competency testing programme.
- POCT Glucose & Ketone Controls are available as liquid stable material at 6 concentrations to cover the analytical range.

## Examples of Laboratory IQC

- Cardiac Marker IQC is a liquid IQC with Troponin values at or near 99<sup>th</sup> centile “diagnostic cut point”.
- A number of Quality Control Reference Materials (QCRM) are available which provide traceability to a higher order method.
- Chemistry QCRM linearity panel are available as a range of up to 8 samples and are suitable for ISO 15189 method verification. These can be customised to your requirements. An example is provided on page 33.
- Bile Acid QCRM is available with ID-GCMS target values and uncertainty of measurement for the individual Bile Acids.
- Endocrine QCRM is provided with ID-LC-MS/MS Reference values and uncertainty of measurement for a number of steroids.
- Ethylene Glycol Linearity Control - available at 5 linearly related concentrations.
- Positive and negative controls for guaiac based Faecal Occult Blood tests (FOB).

## Testosterone / Cortisol Calibrators

The use of Tandem Mass Spectrometry has increased significantly for steroid analysis and is now a routine procedure in some laboratories. Testosterone and Cortisol Tandem MS standards are used as an assayed quality control material for verification of “in house” prepared calibrators to assist laboratories with ISO 15189 compliance. Weqas’ standards are prepared and value assigned by the Weqas Reference Measurement Laboratory using traceable material of the highest metrological order. Further information on this material is provided on page 32-33.



WNeQas



# Electrolyte Quality Control Reference Material

**Volume:** 3.5 mL

**Material:** Sterile liquid human serum, with an antibiotic added to prolong stability, available at a range of concentrations. Analyte values for Sodium, Potassium, Magnesium, Calcium and Lithium are obtained using a validated FAES / FAAS method traceable to SI units via the use of primary reference material. The assigned values for Chloride are obtained from the ISE method mean values derived from a minimum of 2 distributions of EQA material to all participants of the Serum Chemistry programme.

**Storage:** Stable until the expiration date on the vial label when stored unopened at -20°C. The material must be used immediately following thawing and must not be subjected to freeze thaw cycles.

Examples of the concentration of measurands available

Measurand	Target value mmol/L				Method
	Level 2	Level 4	Level 6	Level 8	
Sodium mmol/L	111.6	124.0	137.4	151.1	FAES Reference method
Potassium mmol/L	2.65	4.19	5.81	7.52	
Magnesium mmol/L	0.62	0.97	1.33	1.69	FAAS Reference Method
Calcium mmol/L	1.62	2.07	2.51	2.92	
Lithium mmol/L	0.25	0.74	1.23	1.74	
Chloride mmol/L	81.3	92.1	103.1	114.2	ISE

# Testosterone Quality Control Reference Material

**Volume:** 1.8 mL

Examples of the concentration of measurands available

**Material:** Sterile liquid human serum, with an antibiotic added to prolong stability, available at a range of concentrations. The assigned ID-LC-MS/MS target values are provided as a confirmation of accuracy. The Testosterone target values are traceable to SI units via the use of a primary standard and primary reference material.

**Storage:** Stable until the expiration date on the vial label when stored unopened at -20°C. The material must be used immediately following thawing and must not be subjected to freeze thaw cycles.

Level	ID-LC-MS/MS Target Value (nmol/L)	Expanded Uncertainty
1	4.49	0.14
2	9.68	0.31
3	15.11	0.48
4	28.93	0.92

# Testosterone Calibrators

**Volume:** 1.0 mL

Examples of the concentration of measurands available

**Material:** Sterile liquid, charcoal stripped, human serum. The Testosterone target values are traceable to a gravimetrically added certified reference standard. Calibrator values are assigned using a validated ID-LC-MS/MS reference method. Suitable for the calibration of Tandem Mass Spectrometer testosterone methods.

**Storage:** Stable until the expiration date on the vial label when stored unopened at -20°C. The material must be used immediately following thawing and must not be subjected to freeze thaw cycles.

Level	ID-LC-MS/MS Target Value (nmol/L)	Expanded Uncertainty
0	0	-
1	0.50	-
2	1.76	0.06
3	3.05	0.10
4	7.97	0.25
5	15.13	0.48
6	25.0	0.79
7	40.11	1.27

# Chemistry Quality Control Reference Material

**Volume:** 3.5 mL

**Material:** Sterile liquid human serum, with an antibiotic added to prolong stability, available at a range of concentrations. Analyte values for Sodium, Potassium, Calcium, Magnesium and Lithium are obtained using a validated FAES / FAAS reference method and traceable to SI units via the use of primary reference material. Values for Creatinine, Uric Acid and Glucose are assigned using a validated ID-GCMS reference method. The assigned values for Chloride are obtained from the ISE method mean values derived from a minimum of 2 distributions of EQA material to all participants of the Serum Chemistry Programme.

**Storage:** Stable until the expiration date on the vial label when stored unopened at -20°C. The material must be used immediately following thawing and must not be subjected to freeze thaw cycles (use immediately).

Examples of the concentration of measurands available

Measurand	Target value mmol/L				Method
	Level 2	Level 4	Level 6	Level 8	
Sodium mmol/L	111.6	124.0	137.4	151.1	FAES Reference method
Potassium mmol/L	2.65	4.19	5.81	7.52	
Chloride mmol/L	81.3	92.1	103.1	114.2	ISE
Calcium mmol/L	1.65	2.01	2.37	2.73	FAAS Reference method
Magnesium mmol/L	0.66	1.01	1.36	1.72	
Lithium mmol/L	0.25	0.77	1.28	1.80	
Creatinine µmol/L	108	247	378	513	ID-GCMS
Uric Acid µmol/L	260	371	482	593	
Glucose mmol/L	4.6	10.1	15.6	21.2	

# Cortisol Quality Control Reference Material

**Volume:** 1.8 mL

**Material:** Sterile liquid human serum, with an antibiotic added to prolong stability, available at various concentrations. The assigned ID-LC-MS/MS target values are provided as a confirmation of accuracy.

**Storage:** Stable until the expiration date on the vial label when stored unopened at -20°C. The material must be used immediately following thawing and must not be subjected to freeze thaw cycles.

Examples of the concentration of measurands available

Level	ID-LC-MS/MS Target Value (nmol/L)	Expanded Uncertainty
1	227.75	9.3
2	334.54	13.7
3	566.44	23.1
4	1065.45	43.5

# Cortisol Calibrators

**Volume:** 1.0 mL

**Material:** Sterile liquid, charcoal stripped, human serum. The Cortisol target values are traceable to a gravimetrically added certified reference standard. Calibrator values are assigned using validated ID-LC-MS/MS reference method. Suitable for the calibration of Tandem Mass Spectrometer cortisol methods.

**Storage:** Stable until the expiration date on the vial label when stored unopened at -20°C. The material must be used immediately following thawing and must not be subjected to freeze thaw cycles.

Examples of the concentration of measurands available

Level	ID-LC-MS/MS Target Value (nmol/L)	Expanded Uncertainty
0	0	-
1	25.49	1.04
2	52.03	2.13
3	93.73	3.83
4	257.37	10.51
5	509.00	20.79
6	940.25	38.41
7	1466.93	59.93
8	2012.89	82.23

# IQC & EQA

## POCT Hybrid Programmes

### What are our Hybrid Programmes?

This is a concept where IQC and EQA are combined in one programme.

Our Hybrid services include:

#### **The provision of CE-marked IQC material**

- Sites are sent IQC samples sufficient for 1 month
- Acceptance values predetermined, appropriate for instrument and clinical utility of test
- Materials are delivered to POCT locations, or to other agreed distribution points
- Liquid, stable materials

#### **Site enters IQC results into a 3rd party cloud-based system**

- Instant feedback provided on pass / fail status
- Complete audit trail of QC activity

#### **EQA is incorporated without the need for additional samples or data entry**

- IQC data is extracted at defined intervals and assessed
- Weqas generate EQA reports which are emailed to the user / organiser

### Available Programmes

This combined service is currently available for the following programmes:

- Hybrid Lipid
- Hybrid HbA1c

Further information can be found on [www.weqas.com](http://www.weqas.com).





# Reference Measurement Service



The Weqas Reference Measurement Laboratory is accredited to the recognised International Standard – General requirements for competence of Calibration and Testing Laboratories (ISO/IEC 17025) and in accordance with Laboratory medicine – Requirements for the competence of calibration laboratories using reference measurement procedures (ISO/IEC 15195).

The Reference Measurement Laboratory offers a range of reference measurement procedures utilising “gold standard” technology, using traceable material of the highest metrological order, with gravimetric preparation of all samples and calibrators. All uncertainty calculations are made according to the Guide to the Expression of Uncertainty in Measurement (GUM).

The laboratory is listed as a Joint Committee on Traceability in Laboratory Medicine (JCTLM) reference measurement provider and regularly participates in the JCTLM RELA surveys for Reference Laboratories. The Head of the Reference Measurement Laboratory, is a member of the JCTLM Reference Measurement Method review teams for metabolites and non-peptide hormones and is the team leader for electrolytes and blood gases.

Traceable reference measurement services underpin the global effort in the harmonisation of laboratory results. This ensures that patients receive the correct diagnosis and treatment independent of the country or hospital they are in. The services are available to all relevant healthcare professionals, including National Metrological Institutes, IVD Manufacturers and EQA organisers.

Analytical Technique	Analyte	Approx. Range Covered	Matrix
Isotope Dilution Gas Chromatography Mass Spectrometry (ID-GCMS)	Steroids		
	- Progesterone*	1 – 100 nmol/L	Serum
	- Testosterone	1 – 35 nmol/L	Serum
	- Cortisol	100 – 1500 nmol/L	Serum, Urine
	Bile Acids		
	- Cholic Acid*	0.1 – 100 µmol/L	Serum
	- Deoxycholic Acid*	0.1 – 100 µmol/L	Serum
	- Chenodeoxycholic Acid*	0.1 – 100 µmol/L	Serum
	Creatinine	25 – 600 µmol/L	Serum, Urine
	Glucose	1 – 25 mmol/L	Serum
	Uric Acid	0.1 – 1.2 mmol/L	Serum
Cholesterol	1 – 8 mmol/L	Serum	
Triglycerides	0.6 – 8 mmol/L	Serum	
Isotope Dilution Liquid Chromatography Mass Spectrometry (ID-LC-MS/MS)	Testosterone	1 – 35 nmol/L	Serum
	Cortisol	100 – 1500 nmol/L	Serum, Urine
Flame Atomic Absorption / Emission Spectrometry	Sodium	105 – 160 mmol/L	Serum
	Potassium	1.8 – 7.5 mmol/L	Serum
	Calcium	1.6 – 4 mmol/L	Serum
	Magnesium	0.4 – 2 mmol/L	Serum
	Lithium	0.2 – 2 mmol/L	Serum
UV / Vis spectrometry (IFCC 37°C methods)	Lactate Dehydrogenase	100 – 500 IU	Calibration materials, control specimens and serum
	Gamma Glutamyl Transferase	20 – 400 IU	
	Aspartate Transaminase	5 – 600 IU	
	Alanine Transaminase	5 – 300 IU	

\* Not Accredited

## Traceability: Certified Reference Material

- Traceable material of the highest metrological order is used for all method calibration where available.
- Suitable matrix matched traceable control material of a higher order is used in all methods, where available, as a confirmation of the traceability and accuracy of each method.

All reference methods are recognised as primary or secondary reference measurement procedures. Where available, methods listed as JCTLM approved reference methods are used. Exact matching isotope dilution used for all Mass Spectrometry methods provides the most accurate method for generating sample results. All samples and calibrators are prepared gravimetrically using traceable weighing equipment as appropriate. Dilution of samples for atomic absorption/emission methods utilises automated equipment, increasing the accuracy of sample preparation. The performance criteria used for all methods conform to currently accepted international criteria for Reference Measurement Procedures.

# Quick Guide

Our Quick Guide section has been designed to give an 'At A Glance' view of our EQA programmes and the analytes that are covered. The tables on pages 40-44 list all of the analytes covered along the top, the programme they are included in is indicated by a circle in the relevant row.

We have also included an Index on page 45 to help you to quickly navigate to the desired programme. Further information about our programmes and sample dispatch dates can be found on our website: [www.weqas.com](http://www.weqas.com).





Programmes	Analytes	Analytes																														
		Adjusted Calcium	Alanine aminotransferase (ALT)	Albumin	Albumin (Urine)	Albumin / Creatinine Ratio	Alkaline phosphatase (ALP)	Amikacin	Ammonia	Amphetamine	Amylase (Total)	Apolipoprotein A1	Apolipoprotein B	Aspartate Aminotransferase (AST)	B12 (Vitamin)	Barbiturates	Base Excess (BE)	Benzodiazepines	Bicarbonate (Actual)	Bicarbonate	Bile Acids (Total)	Bilirubin (Conjugated)	Bilirubin (Total)	Bilirubin (Urine)	Buprenorphine	Calcium	Calculated Globulin	Cannabis	Carbamazepine	Carbon dioxide partial pressure (pCO <sub>2</sub> )	Carboxyhaemoglobin	
Ammonia	L							●																								
Bile Acids	L																					●										
Bilirubin	L P																					●	●	●								
Blood Gas	L P															●		●													●	
Co-oximetry	L P																						●								●	
CRP	L P																															
ED Toxicology	L																															
Endocrine	L																															
Fetal Fibronectin	P																															
Haematinics	L																															
HbA1c	L P																															
HIL Serum Indices	L																															
Homocysteine	L																															
hsTroponin	L																															
Lipids	L										●	●																				
NT-Pro BNP	L																															
PAMG-1	P																															
pH Meter	L																															
phIGFBP-1	P																															
POCT Cardiac	P																															
POCT Creatinine	P																															
POCT D-Dimer	P																															
POCT Glucose & Ketones	P																															
POCT Haemoglobin	P																															
POCT Healthchecks	L P																															
POCT HIV	P																															
POCT INR	P																															
POCT Lipids	P																															
POCT PROM	P																															
POCT Respiratory Virus	P																															
POCT Strep A	P																															
POCT Urinalysis	P			●	●																			●								
Porphyrin	L																															
Pre-Eclampsia	L																															
Procalcitonin	L																															
Quantitative Faecal Hb	L																															
Renal Calculi	L																															
Serum ACE	L																															
Serum Chemistry	L	●	●	●		●				●			●								●						●	●				
Serum hCG	L																															
Therapeutic Drug Monitoring	L						●																									
Urine Chemistry	L			●	●					●																	●					
Urine Drugs of Abuse	L P							●							●		●								●			●				
Urine Oxalate & Citrate	L																															
Urine Pregnancy	P																															
Viscoelastic Haemostasis	P																															

● Qualitative and Quantitative tests available. L = Laboratory EQA P = POCT EQA



Programmes	Analytes	HIV Antibodies	Homocysteine	Hydrogen ion	IGFBP-1	Influenza A	Influenza B	INR	Ionized Calcium	Iron	Ketamine •	Ketones	Lactate	Lactate Dehydrogenase (LDH)	LDL Cholesterol	Leucocytes	LH	Lipase	Lipoprotein (a)	Lithium	Magnesium	MDMA	Methadone •	Methaemoglobin	Methamphetamine •	Methanol	Methotrexate	Nitrites	Non-HDL Cholesterol	NT-Pro BNP	Oestradiol
		Ammonia	L																												
Bile Acids	L																														
Bilirubin	L P																														
Blood Gas	L P			●					●				●							●	●										
Co-oximetry	L P																							●							
CRP	L P																														
ED Toxicology	L																									●					
Endocrine	L																●														●
Fetal Fibronectin	P																														
Haematinics	L									●																					
HbA1c	L P																														
HIL Serum Indices	L																														
Homocysteine	L		●																												
hsTroponin	L																														
Lipids	L														●				●										●		
NT-Pro BNP	L																													●	
PAMG-1	P																														
pH Meter	L																														
phIGFBP-1	P																														
POCT Cardiac	P																														
POCT Creatinine	P																														
POCT D-Dimer	P																														
POCT Glucose & Ketones	P											●																			
POCT Haemoglobin	P																														
POCT Healthchecks	L P														●														●		
POCT HIV	P	●																													
POCT INR	P							●																							
POCT Lipids	P																														
POCT PROM	P			●																											
POCT Respiratory Virus	P				●	●																									
POCT Strep A	P																														
POCT Urinalysis	P											●			●												●				
Porphyrin	L																														
Pre-Eclampsia	L																														
Procalcitonin	L																														
Quantitative Faecal Hb	L																														
Renal Calculi	L																														
Serum ACE	L																														
Serum Chemistry	L								●				●					●		●											
Serum hCG	L																														
Therapeutic Drug Monitoring	L																			●							●				
Urine Chemistry	L																				●										
Urine Drugs of Abuse	L P									●												●	●		●						
Urine Oxalate & Citrate	L																														
Urine Pregnancy	P																														
Viscoelastic Haemostasis	P																														

● Qualitative and Quantitative tests available. L = Laboratory EQA P = POCT EQA

Opiates (Morphine) •	
Osmolality	
Oxalate	
Oxygen partial pressure (pO <sub>2</sub> )	
Oxygen saturation (sO <sub>2</sub> )	
Oxyhaemoglobin	
p24 Antigen	
PAMG-1	
Pancreatic Amylase	
Paracetamol	
PBG (Porphobilinogen) •	
PBG / Creatinine Ratio	
pH	
Phencyclidine (PCP)	
Phenobarbital	
Phenytoin	
phiGFBP-1	
Phosphate	
PIGF	
Porphyrin (Faecal)	
Porphyrin (Plasma) •	
Potassium	
Pre-eclampsia Risk	
Procalcitonin	
Progesterone	
Prolactin	
Protein (Serum)	
Protein (Urine)	
Protein / Creatinine Ratio	
Renal Calculi	
RSV	
Salicylate	
SARS-CoV-2 Ag (RNA)	
Serum ACE	
sFlt-1	
sFlt-1 / PIGF Ratio	
SHBG	
Sodium	
Specific Gravity	

Programmes	Analytes	Standard Bicarbonate	Streptococcus A	Teicoplanin	Testosterone	Theophylline	TIBC	Tobramycin	Total Carbon dioxide (TCO <sub>2</sub> )	Total T3	Total T4	Transferrin	Transferrin Saturation	Tricyclic Antidepressants (TCA)	Triglyceride	Troponin I	Troponin T	TSH	TUP (Total Urine Porphyrin) •	TUP / Creatinine Ratio	UIBC	Urate	Urea	Urobilinogen	Valproic Acid	Vancomycin	Viscoelastic Haemostasis		
		Ammonia	L																										
Bile Acids	L																												
Bilirubin	L P																												
Blood Gas	L P	•						•															•						
Co-oximetry	L P																												
CRP	L P																												
ED Toxicology	L																												
Endocrine	L			•				•	•									•											
Fetal Fibronectin	P																												
Haematinics	L					•						•	•								•								
HbA1c	L P																												
HIL Serum Indices	L																												
Homocysteine	L																												
hsTroponin	L															•	•												
Lipids	L														•														
NT-Pro BNP	L																												
PAMG-1	P																												
pH Meter	L																												
phIGFBP-1	P																												
POCT Cardiac	P															•	•												
POCT Creatinine	P																												
POCT D-Dimer	P																												
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POCT Urinalysis	P																								•				
Porphyrin	L																			•	•								
Pre-Eclampsia	L																												
Procalcitonin	L																												
Quantitative Faecal Hb	L																												
Renal Calculi	L																												
Serum ACE	L																												
Serum Chemistry	L					•					•	•										•	•						
Serum hCG	L																												
Therapeutic Drug Monitoring	L		•		•		•																			•	•		
Urine Chemistry	L																					•	•						
Urine Drugs of Abuse	L P													•															
Urine Oxalate & Citrate	L																												
Urine Pregnancy	P																												
Viscoelastic Haemostasis	P																												•

• Qualitative and Quantitative tests available. L = Laboratory EQA P = POCT EQA

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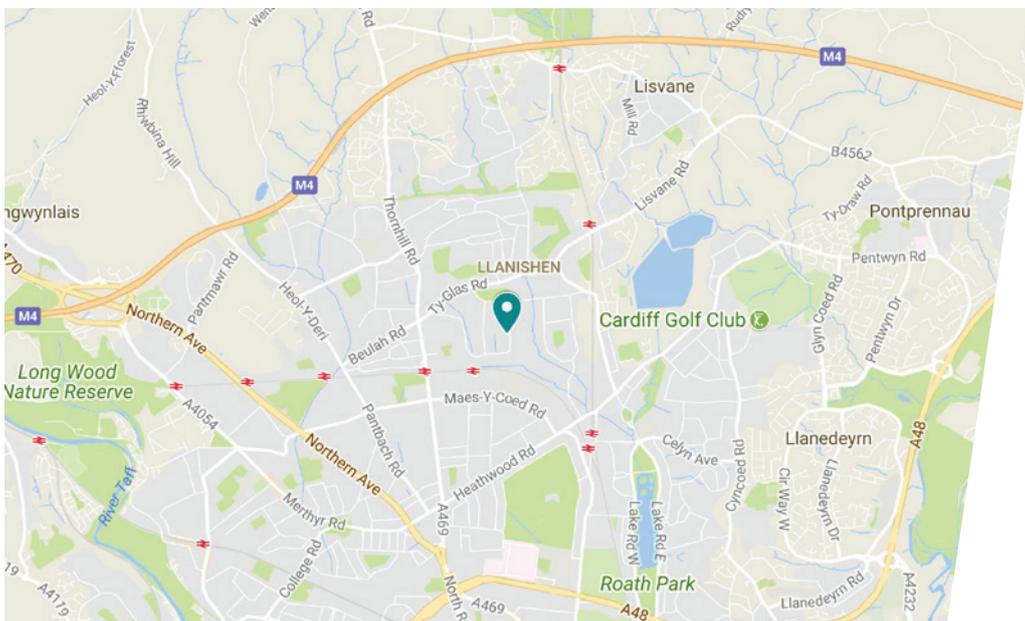
Enter 51°31'28.4"N 3°11'31.7"W into your Sat Nav or use Google Maps to get directions for your journey. If your Sat Nav doesn't accept long / lat, try using CF14 5DU which will get you near our offices.

## Parking

There are limited parking spaces at our main building, but plentiful parking nearby. If you have a query regarding parking in relation to a site visit, don't hesitate to contact us for arrangements.

## By Train

If you're visiting us by train, travel to Cardiff Central, then take a local train to Tŷ Glas, which is very near our main building. Visit National Rail for more information.





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