Biochemistry User Handbook

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Contents

1. Introduction

This handbook is to inform and assist users of the services provided by the Biochemistry laboratories within Synnovis Pathology.
Synnovis is a partnership between SYNLAB UK & Ireland, Guy's and St Thomas' NHS Foundation Trust, and King's College Hospital NHS Foundation Trust.

The Pathology Department is committed to providing a clinical diagnostic service of the highest quality standard for its users, taking into account their needs and requirements.

This Handbook includes information on:

- Contact details for key staff
- Service levels and hours of operation
- Location of services
- Types of investigation offered
- Types of specimens required and collection conditions.
- Instructions for collecting specimens with a particular emphasis on safety and maintenance of sample validity

Should any service user have any queries in connection with any aspect of the pathology wide service, initial contact must be made with Synnovis Customer Service team, via email or telephone:

- Email: customerservices@synnovis.co.uk
- Telephone: 020 4513 7300

More information about Synnovis and the services offered can be found on the Synnovis website: www.synnovis.co.uk

This Pathology User Handbook should be user-friendly and intuitive. Suggestions for improving the content for the next edition are welcome.

1.1 Definitions

Term	Definition
Hub	Laboratory, Friar's Bridge Court
ESL	Essential Services Laboratory
DH	Denmark Hill site, King's College Hospital
GH	Guy's Hospital
HH	Harefield Hospital
PRUH	Princess Royal University Hospital site, King's College Hospital
RBH	Royal Brompton Hospital
STH	St Thomas's Hospital
LIMS	Laboratory Information Management System
GSTT	Guy's & St. Thomas' NHS Foundation Trust
KCH	King's College Hospital Trust
BMS	Biomedical Scientist

2. Biochemistry Laboratories

2.1 Biochemistry laboratories and locations

Synnovis offers a range of Biochemistry tests across each one of its laboratory sites, the Hub and the Essential Service Laboratories. The laboratories currently have UKAS accreditation, demonstrating compliance with the ISO15189:2022 standard. Specific information on accredited tests is available on the UKAS website:

https://www.ukas.com **Customer number 8710**.

These laboratories provide a 24-hour diagnostic and advisory service to the Trusts' clinical staff and the patients in their care.

The qualified health professionals (Biomedical Scientists) employed in the department are registered with the Health and Care Professions Council (HCPC) meeting the standards for their respective training, professional skills, behaviour and health.

Clinical advice and interpretation of results is available during the laboratory routine opening hours, as well as during out-of-hours periods. Contact details and specific information on access to clinical advice out-of-hours are listed throughout this document.

2.2 General information and Clinical Advisory Services

The Biochemistry laboratories at Synnovis offer a 24/7 service.

Clinical advice can be obtained from the Duty Biochemist (Clinical Scientist), who can be contacted as per the details in the table below.

The out-of-hours service runs outside of the routine laboratory hours listed above and during Bank Holidays.
At least one BMS is on site at all times and can be contacted via the switchboard on each site.
Clinical advice out of hours can be obtained from the Chemical Pathologists, who can be contacted through the Hospital switchboard for each site.
Information on contact numbers is available below.

Laboratory site:	Postal address	Contact details & Clinical advice
Hub Laboratory Friar's Bridge Court	Biochemistry Department Blood Sciences Laboratory, Synnovis Analytics Central Specimen Reception, Ground Floor, Friars Bridge Court 41-43 Blackfriars Road London SE1 8NZ	Mon-Fri: 08:00-18:00 **Customer services:** **020 4513 7300** For **Clinical Advice** Mon-Fri 09:00-17:30 please contact the Duty Biochemist: 0204 591 0025 (Hub DB office) or email dutybiochemist@synnovis.co.uk If applicable, the enquiry may be referred to the Chemical Pathologist for clinical advice.

		For clinical advice **Out-of-hours** – contact the corresponding Hospital Site for your catchment area. On-call duty Consultant Via KCH switchboard **020 3299 9000** **or** Via GSTT switchboard **020 7188 7188**
ESL – DH Denmark Hill site, KCH	Biochemistry Department, Synnovis Analytics Ground Floor, Bessemer Wing, King's College Hospital NHS Foundation Trust, Denmark Hill London SE5 9RS	**Switchboard: 020 3299 9000** For **Clinical Advice** Mon-Fri 09:00-17:30 please contact the Duty Biochemist: 0204 591 0025 (Hub DB office) or email dutybiochemist@synnovis.c.o.uk If applicable, the enquiry may be referred to the Chemical Pathologist for clinical advice. For **Out-of-Hours** Clinical Advice: Via KCH switchboard **020 3299 9000**
ESL – GH Guy's Hospital site, GSTT	Biochemistry Department, Synnovis Analytics Blood Sciences Laboratory, 4th Floor Southwark Wing Guy's Hospital Great Maze Pond, London, SE1 9RT	**Switchboard: 020 7188 7188** For **Clinical Advice** Mon-Fri 09:00-17:30 please contact the Duty Biochemist: 0204 591 0025 (Hub DB office) or email dutybiochemist@synnovis.c.o.uk If applicable, the enquiry may be referred to the Chemical Pathologist for clinical advice. For **Out-of-Hours** Clinical Advice: Via GSTT switchboard **020 7188 7188**
ESL – PRUH Princess Royal University Hospital site, KCH	Biochemistry Department, Synnovis Analytics Blood Sciences Laboratory, Level 2, South Wing, Farnborough Common, Orpington BR6 8ND	**Switchboard: 020 3299 9000** For **Clinical Advice** Mon-Fri 09:00-17:30 please contact the Duty Biochemist: 0204 591 0025 (Hub

		DB office) or email dutybiochemist@synnovis.co.uk If applicable, the enquiry may be referred to the Chemical Pathologist for clinical advice. For **Out-of-Hours** Clinical Advice: Via KCH switchboard **020 3299 9000**
ESL – RBH The Royal Brompton Hospital, GSTT	Biochemistry Department, Synnovis Analytics Blood Sciences Laboratory, Ground Floor Sydney Street, London SW3 6NP	**Switchboard: 020 7352 8121** For **Clinical Advice** Mon-Fri 09:00-17:30 please contact the Duty Biochemist: 0204 591 0025 (Hub DB office) or email dutybiochemist@synnovis.co.uk If applicable, the enquiry may be referred to the Chemical Pathologist for clinical advice. For **Out-of-Hours** Clinical Advice: Via GSTT switchboard **020 7188 7188**
ESL – HH Harefield Hospital, GSTT	Biochemistry Department, Synnovis Analytics Blood Sciences Laboratory, Hill End Road, Uxbridge UB9 6JH	**Switchboard: 020 7352 8121** For **Clinical Advice** Mon-Fri 09:00-17:30 please contact the Duty Biochemist: 0204 591 0025 (Hub DB office) or email dutybiochemist@synnovis.co.uk If applicable, the enquiry may be referred to the Chemical Pathologist for clinical advice. For **Out-of-Hours** Clinical Advice: Via GSTT switchboard **020 7188 7188**
ESL - STH St Thomas's Hospital site, GSTT	Biochemistry Department, Synnovis Analytics Blood Sciences Laboratory, Synnovis Analytics 5th Floor North Wing St. Thomas'	**Switchboard: 020 7188 7188** For **Clinical Advice** Mon-Fri 09:00-17:30 please contact the Duty Biochemist: 0204 591 0025 (Hub

	Hospital Westminster Bridge Road, London, SE1 7EH	DB office) or email dutybiochemist@synnovis.co.uk If applicable, the enquiry may be referred to the Chemical Pathologist for clinical advice. For **Out-of-Hours** Clinical Advice: Via GSTT switchboard **020 7188 7188**

If you need to request an unusual test please telephone to discuss this before taking the sample using the contact details for clinical advice as above. If tests are not analysed in-house, they are sent to an alternative Synnovis site or specialist referral centre for testing.

See also contacts below for Biochemistry across Synnovis:

Name	Role	Email address
Analie Booth	Director of Operations, Blood Sciences	Analie.booth@synnovis.co.uk
Steve Wilkins	Deputy Operations Service Director, Blood Sciences	Stephen.wilkins2@synnovis.co.uk
Dr Katharine Bates	Lead Clinical Scientist, Core Biochemistry	Katharine.bates@synnovis.co.uk
Dr Sunita Sardiwal	Consultant Clinical Scientist	Sunita.sardiwal@synnovis.co.uk

3. Pathology Quality Policy

The requirements of a Quality Policy for the Synnovis Pathology laboratories, are covered by the Pan Synnovis Statement of Purpose PATH-Q-POL2, available on the Synnovis website:
https://www.synnovis.co.uk/our-quality-policy

4. Laboratory Services

4.1 Requirements of users for proper use of the laboratory

Where there is inadequate patient identification, poor request form completion, and/or sample labelling, there is the potential for results being issued for the wrong patient.

As a result, the Pathology laboratory has set out specific instructions; acceptance and rejection criteria, on the requirement for labelling both specimens and request forms, electronic (EPIC/Beaker in secondary care and GP tQuest ordering in primary care) and in hard copy.
The criteria for acceptance reduce the number of tests and investigations, which would otherwise not get back to the correct patients' records, with potentially fatal consequences.
The laboratory stipulates that the correct and accurate completion of patient details on specimen containers and e-requests/forms is essential to achieve a quality pathology service.
There is a professional responsibility to ensure there is positive patient identification to provide safe and effective patient care.
Patient identification data must be confirmed verbally with the patient, i.e. surname, forename, and date of birth. It is accepted that there are very rare and exceptional circumstances where this cannot be achieved.
Further information on the use of laboratory services, including request, transport and sample special requirements can be found in the Synnovis website:
https://www.synnovis.co.uk/test-information

4.2 Consent

The laboratory is required to obtain informed consent of the patient for all procedures carried out. For the most part, the Biochemistry repertoire does not involve invasive procedures, and consent is inferred when the patient willingly submits to the sample collecting procedure e.g. venepuncture.

4.3 Patient identification and specimen labelling

Either an electronic-based (GP tQuest) or a paper-based request form must accompany all specimens sent to the laboratory. (For secondary care electronic-based requests, i.e. generated via EPIC, it is accepted that there is no request form as the specimen label will provide all the necessary information).

It should clearly state the following information:
Please note: the information highlighted in bold are a minimum requirement and without them the sample will be discarded or delayed:

- **Patient name**
- **Hospital number/NHS number**
- **Date of birth** (age if DOB unknown)
- Sex
- Ward or Address for report
- Requesting Medical Officer/GP name and number
- **Date and time specimen taken**
- Tests required
- Other useful data:

- Contact number for requesting clinician
- Patient address
- All relevant clinical details.

It is the responsibility of the person collecting the specimen to ensure it is correctly labelled.

Under no circumstances is it possible to change or add the details once the sample has been sent to the laboratory.

4.4 Sample rejection

The laboratory will always take steps to avoid sample rejection. This is done on a risk-based approach, depending on multiple factors, including sample repeatability and criticality.
Specimens are accepted only when they are correctly labelled and collected as per instructions provided within this Guide and other related policies to ensure validity of the results.
Patient safety will be always upheld.

Where the rejection and discard policy would be exceptionally detrimental to patient care, i.e. where the specimen is not repeatable perhaps a baseline sample taken before treatment has been administered, analysis or processing will **only** proceed where there is direct contact by the clinician responsible for the patient.
The requester will accept all and absolute responsibility for any and all results on such samples with incorrect, inadequate or illegible labelling processed subsequent to consultation with a Consultant Pathologist responsible for the department in which the requested test would have been analysed.

The report will be annotated with the shortcomings of the request.

The following will be rejected:

- Unlabeled specimens
- Inadequate patient information
- Mismatched samples and forms
- Grossly leaking specimens

The Biochemistry department will strictly enforce this policy. The requested analyses will **NOT** be performed on any samples where there is any discrepancy with patient identification.

4.5 Urgent requests and turn-around times

All requests that meet the requirements to be processed as urgent from the Emergency Department (ED) locations are managed as such with a target turn-around time (TAT) of 1 hour from receipt into the laboratory.

Agreements are in place for Inpatient and urgent Outpatient locations for their samples to be processed on site at the ESL's to meet agreed TAT of 4h from receipt into the laboratory.

Results will not be telephoned unless this has been agreed or the results meet the critical telephoning criteria. Urgent samples do not automatically grant communication of results

from the laboratory. For more information on telephoning results, refer to sections 5.2 and 5.3.

The electronic requesting platforms have the functionality to give a request priority. This will be displayed on the specimen label with a 'U'. These will have a target TAT of 1 hour from the point of receipt in the laboratory.

Inpatient requests have a target TAT of 4 hours from the point of receipt in the laboratory.

Outpatient requests have a target TAT of 6 hours from the point of receipt in the laboratory hub. For those processed on an ESL site the TAT is either 1h or 4h according to whether the sample is requested as urgent or routine.

GP requests processed at the Hub have a target TAT of 6 hours from the point of receipt in the laboratory.

4.6 Add-on tests

Add-on tests are accepted within specified timeframes according to sample stability. Most samples are kept for a minimum of three days (dependent on laboratory test requested and sample validity). During this time, it is usually possible to make an additional request for some analytes; some samples/ analytes may deteriorate and therefore an additional request may not be possible.

Add on tests can be requested directly via EPIC beaker for Trust site users, or via the Synnovis Customer services team: **020 4513 7300** for non-Trust users.
Customer Service opening hours are: Monday - Friday 08:00 - 18:00

4.7 Specimen packaging requirements

4.8 Primary receptacle

A primary watertight leak-proof receptacle containing the specimen. The receptacle must be packaged with enough absorbent material to absorb all fluid in case of breakage.

4.9 Secondary packaging

A second durable, watertight, leak-proof packaging to enclose and protect the primary receptacle(s) i.e. the specimen bag

All samples must be placed in individual plastic 'kangaroo' type sample bags to avoid cross contamination. Any documentation, e.g. request forms, are to be placed in the separate pocket on the outside of the bag.

Bags must not be sealed using staples, pins, or paper clips.

Several cushioned primary receptacles may be placed in one secondary packaging, but sufficient additional absorbent material shall be used to absorb all fluid in case of breakage.

4.10 Outer packaging

The secondary packaging is placed in outer shipping packaging with suitable cushioning material. Outer packaging protects contents from outside influences, such as physical damage, while in transit.

For postal specimens this will be a UN3373 box

For cross-site or GP transport this will be a Daniels box

Any specimens that are received leaking or in a dangerous condition will not be processed but will be discarded. In this event the clinician will be informed via a report generated electronically on the pathology computer system.

4.11 Transportation of specimens

Samples must be delivered to the department in a way that protects and maintains the integrity of the sample. Samples must not be exposed to extreme temperatures or prolonged transport. If samples are in danger of being exposed to conditions where sample integrity can be compromised, please contact the laboratory to discuss the most appropriate method of transport.

When receiving samples from an external institution or laboratory, it is the responsibility of the sender to ensure that the samples are packed in accordance with the current postal regulations, contain the appropriate paperwork and are labelled correctly. Any courier / taxi / suitable transport should be arranged by the sending institution or external laboratory.

4.12 Transport of samples by road

The transport of most specimens from the General Practitioner's surgeries or outreach clinics to the hospital laboratory is provided by designated Courier service providers who will be familiar with their responsibilities.

If for any reason, pathological samples have to be transported via a contracted transport supplier, the following guidelines must be adhered to,

The box must not be transported in the same compartment as passengers – but must be placed in the boot of any vehicle or the rear compartment of any van used and firmly secured.

Mail must not be transported in the same carrier box as specimens.

The container must be secured using appropriate means whilst being transported in the vehicle.

Specimens must be transported in a secure transport box with a fastened leak proof lid. (Compliant with IATA Packaging Instruction 650 or 621 and UN3373 or UN3291)

It is the responsibility of those sending specimens from locations within the Trust but outside the laboratory site that the correct procedures are observed and that they obtain and utilise the approved and correctly labelled transport boxes.

Each box must display a biohazard warning sign and must also state that the box must not be tampered with or opened and a telephone contact number included for emergency purposes.

Carriage of pathological specimens between hospitals and/ or GP clinics and the hospital by road comes under the remit of 'The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009, as amended (CDG Regs)' – ADR regulations.

Owing to the unknown nature of a patient sample, it is imperative that pathological specimens are transported in a way that potentially infectious material will not pose a potential risk, as it is transferred from one location to another. All pathological samples are capable of transmitting infection, and should be treated as potentially High Risk, they should not be assumed to be free from transmissible diseases.

There is more information about transport services via the Synnovis website:

Logistics | Synnovis

Or contact Synnovis customer services via:

customerservices@synnovis.co.uk

4.13 Internal Transportation by Pneumatic Tube system

On ESL sites, some specimens are delivered directly to the pathology reception by porters, phlebotomists, doctors, and nursing staff or sent by the preferred means of transport using the pneumatic tube system.
The Pneumatic Tube System (an air tube system) propels cylindrical containers (transport PODs) through a tube by compressed air or by partial vacuum. There are POD stations in various locations across the different Hospital sites that have this facility.
Before transporting specimens in the Air Tube, senders must ensure that the container lids are properly fastened, and the samples are placed in specimen bags.

- Items must first be placed inside a pneumatic tube carrier before being sent in the system.
- All samples must be placed in individual plastic 'kangaroo' type sample bags to avoid cross contamination (primary receptacle), before being placed into the carrier (transport POD)
- Where there are paper request forms, these must not be placed in the bag with the sample. Place forms into the separate pocket on the outside of the bag.
- If the specimen has to be forced to fit inside a carrier, it is too large and must be either repackaged or delivered to the laboratory by hand.
- Items within the carrier will move around during their journey. In order to prevent breakages, the contents must be protected with absorbent wadding such as paper towels.
- It is important to note that the pods are not leak proof.

It is the senders' responsibility to ensure:

- The specimen is correctly labelled and packaged and accompanied by the relevant paperwork (where relevant).
- All items transported via the air tube system **MUST** be in a pod.
- The ends of the pod are properly latched
- The pod is sent to the correct destination address

PROHIBITED SAMPLES - The air-tube system must **NEVER** be used for the following samples:-
a. Histology samples of any kind, especially in formalin b. 24-hour urine collections c. Non-repeatable fluid samples d. CSF samples e. Blood cultures f. Lower respiratory tract samples e.g. sputum and bronchial washings g. Blood-gas samples in syringes or capillary tubes h. Any samples from patients suffering from CJD, viral haemorrhagic fevers or Hazard Group 4 pathogens* i. Any Pharmacy items j. Empty blood transfusion bags

**Approved List of Biological Agents, Advisory Committee on Dangerous Pathogens HSE (2013)*

4.14 Additional services provided by the Biochemistry department

- Sweat tests
  The staff at DH and STH participate in the actual sweat collection from the patients in the clinical area as well as performing the analysis of the samples. The clinical teams will place an order on Epic and communicate with the laboratory for mutually agreeable dates and times. At STH, these appointments are scheduled for Thursdays.
  At RBH, the clinical teams collect the samples and send them to the laboratory for testing.
- IOPTH
  The STH ESL laboratory also offer an Intra-operative PTH testing service. All patients are booked directly by the clinical team, and the laboratory provide support in theatre as required.
- Diabetic Clinics
  The laboratories at STH', GH and DH support the on-site Diabetic clinic services by providing 'in clinic' HbA1c testing. This provides the clinics with a more efficient service for patients with faster result turn-around times.
- Foetal Monitoring Unit
  STH laboratory also provide an OSCAR (one stop service for assessment of risk) as part of the national Foetal Monitoring screening programme.

5. Results

5.1 Reporting results

Where references ranges are applicable for results, they will be published on the report with the test result. See also [Harmonised Hub Arrangements Page | Synnovis]

Where examinations/ investigations are referred, this will be annotated on the report and further details on referral laboratories are available on request.

IT IS THE RESPONSIBILITY OF THE CLINICIAN REQUESTING THE TEST TO ENSURE THAT THE RESULT WILL BE VIEWED AND ACTED UPON APPROPRIATELY

Once investigations are complete and the results authorised,

- Internally, where the request has been generated in a secondary care setting, the LIMS (Beaker) is interfaced with EPIC, and electronic reports are issued when complete and authorised and will be available for review.
- Where the request has been made in the primary care setting, using tQuest or not, the report will be electronically delivered to the GP EMIS system. As results are authorised, they queue ready for the next result launch.

For those surgeries or external requesters that receive results in hard copy, reports are printed and posted daily.

5.2 Telephoning results

Results will only be telephoned directly to the clinician or clinical area in circumstances where the results meet the critical telephoning criteria and urgent clinical intervention may be required.
Where results are critical for primary care patients, in surgery hours these will be communicated to the requesting GP.
Outside surgery hours the results will be communicated to the - Out of Hours provider contactable via the NHS 111 service.

5.3 Critical telephoning limits for Biochemistry tests

The criteria for critical phoning results are based on the recommendations of the Royal College of Pathologists, and these are available on the Synnovis website: Harmonised Hub Arrangements Page | Synnovis

5.4 Repertoire

Refer to section 10 Biochemistry Test Repertoire – at the end of this document. Contact the laboratory via Customer Service team on **020 4513 7300**, or via email: customerservices@synnovis.co.uk if further information required.

5.5 Interferences affecting performance or interpretation of results

Samples may be rejected by the Laboratory for the following reasons as the integrity of the specimen; the reliability of the testing process or the interpretation of results could be affected by, for example:

- Clots present in the sample
- Sample is too old for testing on receipt, having exceeded the timeframe for the requested test to be valid.
- Lipaemia
- Haemolysis
- Icterus
- Exposure to heat or warmth for prolonged periods
- Insufficient sample received for the scope of tests requested
- Sample has been labelled with a label intended for a different sample type
- Sample has not been subjected to the appropriate specimen requirements, e.g. sample has not been frozen on receipt or has not been collected into a bottle containing a suitable preservative.

5.6 Validity of results

Quality assurance programmes are in operation to ensure satisfactory accuracy and precision of all tests. Even so, random errors can occur and may escape detection in the laboratory. Often the Clinician is well placed to detect such errors and is responsible for following up any discrepant results.

If there is doubt about the validity of any result, contact the Synnovis Customer Services team: **020 4513 7300, or via email:** customerservices@synnovis.co.uk Enquiries will be directed accordingly.

By informing the laboratory of a suspected issue, sometimes it can serve as an alert to a wider problem which can be corrected as soon as possible.

5.7 Interpretation of results

Although reports are checked for clinical feasibility before results are released for reporting and because not all the clinical information is always available, the requesting clinician has to take the ultimate responsibility for the interpretation of the report. Many factors can influence a Pathology result, and these all need to be considered in context.
If the result does not fit the clinical situation, alert the laboratory and discuss this via the clinical advisory contact details in section 2.2. Staff will be able to discuss the accuracy and confidence limits of any test, selection of appropriate tests and the significance of any result.

5.8 Actions taken by the clinician – not dictated by the laboratory

The actions to be taken by clinicians will vary depending on the severity of the result. Escalation of results will also be dependent on the requesting source. If requested by a hospital clinician, they may escalate the result to their consultant if required or act on the result as part of the treatment plan and/or inform the patient's GP. The timescale for action will also depend on the severity of the result; a very abnormal result could be life threatening therefore action needs to be immediate. Actions taken by the clinician or GP should be documented within the patients' health records.

6. Risk management, incident investigation and service improvement

The pathology department investigates any relevant incidents reported to them irrelevant of the source.
The KCH Trust sites use InPhase, and the GSTT Trust sites use RADAR electronic incident reporting systems. Both reporting systems are accessible via the relevant Trust site intranet pages.
Primary Care users report suspected incidents involving Pathology via the 'GP Alert system' for investigation and reporting outcome. This is fulfilled via a web based Datix platform hosted by the South East London (SEL) Integrated Care Board (ICB).

Queries can also be raised directly with the Synnovis Customer Services team on **020 4513 7300**, or via email: customerservices@synnovis.co.uk Queries will be directed accordingly.

7. Complaints

Formal complaints from users of the service will be received by the Synnovis Customer Services team from the KCH or GSTT complaints teams, PALs offices, or directly from,

- A patient
- A relative or carer
- An advocate on the patient's behalf, e.g. an MP or a local councillor
- A member of the public.
- Hospital Medical / Clinical staff
- GP Practices / Integrated Care Board (ICB)

Complaints from patients will be dealt with according to the Trust official Complaints Policy (see KCH and GSTT websites for the current versions). The Complaint's Office gives clear deadlines for dealing with complaints and providing investigation reports.

8. Research

Please refer to www.synnovis.co.uk for information.

9. Private tests

Please refer to www.synnovis.co.uk for information.

10. Biochemistry test repertoire

All sample requirements are displayed on Epic & tQuest sample labels. All special requirements are available via the Procedure catalogue in Epic. Please note that tests listed are either performed on site or referred internally to the appropriate laboratory.

Epic and tQuest have been programmed to generate the required numbers of labels for the tests requested dependent on laboratory workflows. It is essential that sufficient specimen bottles are collected as per the numbers of labels printed.

For a list of Biochemistry tests and testing location please see Appendix 1.

11. South London and Maudsley

Users from South London and Maudsley NHS FT (SL&M), please refer to the link below containing information on how to raise any queries:

https://slamonline.sharepoint.com/sites/svc-pathology

(Please note: the above link is owned and managed by South London and Maudsley FT).

12. Appendix 1 – Biochemistry Test Repertoire

Name	Sample type	Platform	Hub	PRUH	DH	STH	Guys	RBH	HH
ACE	Serum/plasma/plasma	Alinity c	Yes	No	No	No	No	No	No
Acetaminophen (paracetamol)	Serum/plasma/plasma	Alinity c	No	Yes	Yes	Yes	Yes	No	No
Active-B12	Serum/plasma/plasma	Alinity i	Yes	No	No	No	No	No	No
Acute kidney injury (AKI) warning stage	Serum/plasma/plasma	Calculation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted Calcium	Serum/plasma/plasma	Calculation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AFP	Serum/plasma/plasma	Alinity I	Yes	No	No	No	No	No	No
AFP (fluid)	Fluid	Alinity I	Yes	No	No	No	No	No	No
Alanine Aminotransferase (ALT)	Serum/plasma/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Albumin	Serum/plasma/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Albumin (Fluid)	Fluid	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Albumin (Urine)	Urine	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Albumin (urine)	Urine	Roche Integra	No	No	No	Yes	Yes	No	No
Alkaline Phosphatase (ALP)	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Alpha-1-Antitrypsin	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
Amikacin	Serum/plasma	Alinity c	No	Yes	Yes	Yes	Yes	Yes	Yes
Ammonia	EDTA Plasma	Alinity c	No	Yes	Yes	Yes	No	No	No
Amylase	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Amylase (Fluid)	Fluid	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Amylase (Urine)	Urine	Alinity c	Yes	Yes	Yes	Yes	Yes	No	No
Anion gap	Serum/plasma	Calculation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Anti Mullerian Hormone	Serum/plasma	Roche e402	No	No	No	Yes	No	No	No
Anti-TPO	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Anti-TSH receptor	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Apolipoprotein A-I	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
Apolipoprotein B	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
Aspartate Aminotransferase	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AST/ALT ratio	Serum/plasma	Calculation	No	No	No	Yes	No	No	No
AST/platelet ratio index (APRI)	Serum/plasma	Calculation	No	No	No	Yes	No	No	No
Bicarbonate	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bile Acids	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	No	No	No

Bilirubin	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bilirubin, conjugated (WAKO)	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	No	Yes	Yes
BOHB	Serum/plasma	Alinity c	No	No	No	Yes	No	No	No
CA 125	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
CA 15-3	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
CA 19-9	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
CA 19-9 (fluid)	Fluid	Alinity i	Yes	No	No	No	No	No	No
Caeruloplasmin	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
Calcium	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calcium (urine)	Urine	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Carbamazepine	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	No	No	No
CEA	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
CEA (fluid)	Fluid	Alinity i	Yes	No	No	No	No	No	No
Chloride	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cholesterol	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cholesterol	Serum/plasma	Roche Integra	No	No	No	Yes	Yes	No	No
Complement C3	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
Complement C4	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
Cortisol	Serum/plasma	Alinity i	Yes	Yes	Yes	Yes	Yes	Yes	Yes
C-peptide	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Creatine Kinase	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Creatinine (fluid)	Fluid	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Creatinine (urine)	Urine	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Creatinine, enzymatic	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Creatinine, enzymatic	Serum/plasma	Roche Integra	No	No	No	Yes	Yes	No	No
Creatinine, enzymatic (urine)	Urine	Roche Integra	No	No	No	Yes	Yes	No	No
CRP	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CSF Glucose	CSF	Alinity c	No	Yes	Yes	Yes	Yes	Yes	Yes
CTX	Serum/plasma	Roche e601	No	No	No	Yes	No	No	No
Cystatin C	Serum/plasma	Roche c702	No	No	Yes	No	No	No	No
Digoxin	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	No	Yes	Yes
eGFR	Serum/plasma	Calculation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ethanol	Serum/plasma	Alinity c	No	Yes	Yes	Yes	No	No	No
Ferritin	Serum/plasma	Alinity i	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fluid Bilirubin	Fluid	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fluid Cholesterol	Fluid	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fluid Glucose	Fluid	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Fluid Potassium	Fluid	Alinity c	Yes	No	No	Yes	Yes	Yes	Yes
Fluid Urea	Fluid	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Folate	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Free Androgen Index	Serum/plasma	Calculation	Yes	No	No	No	No	No	No
Free PSA	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Free T3	Serum/plasma	Alinity i	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Free T4	Serum/plasma	Alinity i	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fructosamine	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
FSH	Serum/plasma	Alinity i	Yes	No	No	Yes	Yes	No	No
Gamma Glutamyltransferase (GGT)	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gentamicin	Serum/plasma	Alinity c	No	Yes	Yes	Yes	Yes	Yes	Yes
Gentamicin (fluid)	Fluid	Alinity c	No	No	Yes	Yes	No	No	No
Globulin	Serum/plasma	Calculation	Yes	Yes	Yes	No	No	No	No
Glucose	Fluoride oxalate plasma	Alinity c	Yes	Yes	yes	Yes	Yes	Yes	Yes
Glucose	Fluoride oxalate plasma	Roche Integra	No	No	No	Yes	No	No	No
Haemolysis Index	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Haptoglobin	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	No	No	No
HbA1c	EDTA Whole Blood	Roche c513	Yes	No	No	No	No	No	No
HbA1c	EDTA Whole Blood	Menarini 9210	No	No	Yes	Yes	Yes	No	No
hCG (Abbott)	Serum/plasma	Alinity i	Yes	Yes	Yes	Yes	Yes	Yes	Yes
hCG (fluid) [Roche]	Fluid	Cobas e	No	No	No	Yes	No	No	No
hCG (Roche)	Serum/plasma	Cobas e	No	No	No	Yes	No	No	No
hCG (fluid) [Alinity]	Fluid	Alinity i	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HDL Cholesterol	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Homocysteine	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Icteric Index	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Immunoglobulin A	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
Immunoglobulin G	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
Immunoglobulin M	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
Insulin	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Intact PTH	Serum/plasma	Alinity i	Yes	Yes	Yes	Yes	Yes	No	No
Iron	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ketones (POCT)	Whole blood	POCT	No	Yes	No	No	No	No	No
Lactate	Serum/plasma	Alinity c	No	Yes	Yes	Yes	Yes	No	No
Lactate (CSF)	CSF	Alinity c	No	Yes	Yes	Yes	Yes	No	No
Lactate Dehydrogenase	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Lactate Dehydrogenase (fluid)	Fluid	Alinity c	No	Yes	Yes	Yes	Yes	Yes	Yes
LDL Cholesterol (calculated)	Serum/plasma	Calculation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LDL Cholesterol (direct)	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
LH	Serum/plasma	Alinity i	Yes	No	No	Yes	Yes	No	No
Lipaemic Index	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lipase	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lipoprotein(a)	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
Lithium	Serum/plasma	Alinity c/ ISE	Yes	Yes	Yes	Yes	No	No	No
Macroprolactin	Serum/plasma	Manual	Yes	No	No	No	No	No	No
Magnesium (Mg)	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Methotrexate	Serum/plasma	Alinity i	Yes	No	Yes	Yes	No	No	No
NEFA	Serum/plasma	Alinity c	No	No	No	Yes	No	No	No
Non-HDL	Serum/plasma	Calculation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NSE	Serum/plasma	Alinity i	Yes	No	No	Yes	No	No	No
NT-proBNP	Serum/plasma	Alinity I	Yes	Yes	Yes	Yes	Yes	Yes	Yes
H+, pO2, pCO2, pH, HCO3, lactate, CoHb, MetHb	Heparin whole blood	Radiometer ABL 90 FLEX PLUS	No	Yes	Yes	No	No	No	No
Oestradiol	Serum/plasma	Alinity i	Yes	No	No	Yes	Yes	No	No
Osmolality (Serum/plasma)	Serum/plasma	Advanced Instruments Osmometer	No	Yes	Yes	Yes	No	Yes	Yes
Osmolality (Urine)	Urine	Advanced Instruments Osmometer	No	Yes	Yes	Yes	No	Yes	Yes
P1NP	Serum/plasma	Roche e601	No	No	No	Yes	No	No	No
Pancreatic amylase	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
PD Fluid Creatinine	PD Fluid	Alinity c	Yes	No	Yes	Yes	No	No	No
PD Fluid Total Protein	PD Fluid	Alinity c	Yes	No	Yes	Yes	No	No	No
PD Fluid Urea	PD Fluid	Alinity c	Yes	No	Yes	Yes	No	No	No
Phenobarbital	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
Phenytoin	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	No	No	No
Phosphate	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PIGF	Serum/plasma	Roche e601	No	No	No	Yes	No	No	No
PIVKA-II, Alinity i	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Potassium	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Potassium (Urine)	Urine	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Procalcitonin	Serum/plasma	Alinity i	No	Yes	Yes	Yes	Yes	Yes	Yes
Progesterone	Serum/plasma	Alinity i	Yes	Yes	Yes	Yes	Yes	No	No
Prolactin	Serum/plasma	Alinity i	Yes	Yes	Yes	Yes	Yes	No	No
Protein, Total (CSF)	CSF	Alinity c	No	Yes	Yes	Yes	Yes	Yes	Yes
Protein, Total (Fluid)	Fluid	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Protein, Total (Total)	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Protein, Total (Urine)	Urine	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rheumatoid Factor	Serum/plasma	Alinity c	Yes	No	No	No	No	No	No
Salicylate	Serum/plasma	Alinity c	No	Yes	Yes	Yes	No	No	No
sFLT-1	Serum/plasma	Roche e601	No	No	No	Yes	No	No	No
sFLT-1/PIGF ratio	Serum/plasma	Calculation	No	No	No	Yes	No	No	No
SHBG	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Sodium (Fluid)	Fluid	Alinity c	No	No	No	Yes	Yes	Yes	Yes
Sodium (NA)	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sodium (Urine)	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
STFR	Serum/plasma	Roche c702	No	No	Yes	No	No	No	No
Testosterone	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Theophylline	Serum/plasma	Alinity c	No	Yes	Yes	Yes	No	Yes	No
Tobramycin	Serum/plasma	Alinity c	No	No	Yes	No	No	Yes	Yes
Total PSA	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Transferrin	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Transferrin saturation	Serum/plasma	Calculation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Triglycerides	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Triglycerides (fluid)	Fluid	Alinity c	No	Yes	Yes	Yes	Yes	Yes	Yes
Troponin I	Serum/plasma	Alinity i	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TSH	Serum/plasma	Alinity i	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Urate / Uric Acid	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Urea	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Urine Albumin/Creatinine Ratio	Urine	Calculation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Urine Calcium/Creatinine Ratio	Urine	Calculation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Urine Chloride	Urine	Alinity c	Yes	No	No	No	No	No	No
Urine Magnesium	Urine	Alinity c	Yes	No	No	No	No	No	No
Urine Phosphate	Urine	Alinity c	Yes	No	No	No	No	No	No
Urine Protein/Creatinine Ratio	Urine	Calculation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Urine Urea	Urine	Alinity c	Yes	No	Yes	No	No	No	No

Urine Uric Acid	Urine	Alinity c	Yes	No	No	No	No	No	No
Valproate	Serum/plasma	Alinity c	Yes	Yes	Yes	Yes	No	No	No
Vancomycin	Serum/plasma	Alinity c	No	Yes	Yes	Yes	Yes	Yes	Yes
Vitamin B12	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Vitamin D	Serum/plasma	Alinity i	Yes	No	No	No	No	No	No
Xanthochromia	CSF	Spectro	No	No	Yes	No	No	No	No