PRUH - Pathology User Handbook

Version number 8.0

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Version Number	Change Details	Date
7.0	Review to remove reference to previous LIMS & add reference to EPIC/Beaker. Plus review raised Change Requests and update where relevant	29/08/2024
8.0	Review to update key staff details following the TOM changes Updated test repertoire since transformation to Blood Sciences ESL as part of TOM changes	14/09/2025

Contents

1. Introduction

1.1 Purpose and Scope

This handbook is to inform and assist service users in getting the best from Synnovis Pathology Services at the Princess Royal University Hospital.

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 the relevant departmental Senior Operational Staff or the discipline specific Quality Manager(s).

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

1.2 PRUH Pathology Laboratory

The Pathology department includes the following specialties: -

Blood Sciences [UKAS Accreditation – Reference 20293] refer to the accredited tests schedule on https://www.ukas.com/

- Biochemistry
- Haematology
- Blood Transfusion

Biochemistry and Haematology are Essential Services Laboratories (ESLs) providing Pathology services for the Emergency Department, in-patients, specific out-patient clinics at the PRUH and urgent requests for some Community Services. Requests for General Practice and routine out-patients are processed at the Hub laboratory, Friars Bridge Court, 41-43 Blackfriars Road, London, SE1 8NZ.

Infection Sciences:

- Microbiology
- Virology

Tissue Sciences

- Histology
- Non-gynae Cytology

Support Services:

- Specimen Reception

- Consumable supplies
  - Specimen deliveries and visitors to Pathology should always present at the Specimen Reception desk, Level 2, South wing.
  - Access to all areas of the Pathology department is restricted to authorised staff only. All entrances into the department are secured by Digi-lock or proximity pass access.
  - The department operates in compliance with the standards laid out by ISO 15189:2012 and the NHS Antenatal screening programmes, and the legislation regulated by the MHRA and the HTA. The laboratories are registered for training with the Institute of Biomedical Sciences (IBMS).
  - The qualified health professionals employed in the department are registered with the Health & Care Professions Council (HCPC) meeting the standards for their training, professional skills, behaviour and health.
  - **Clinical advice** and interpretation of results is available during the laboratory routine opening hours.
  - **Clinical advice (out of hours)** - contact details and access to clinical advice out-of-hours are specified in each departmental section of this handbook.

PRUH Pathology Laboratory – contact details	
Postal address:	Pathology Laboratory (Synnovis LLP) Level 2, South Wing Princess Royal University Hospital, Farnborough Common, Orpington, Kent, BR6 8ND
PRUH Pathology - Clinical Leadership	
Name:	Dr Royce Vincent
Tel Extn:	020 3299 4124 (DH)
Email:	royce.vincent@nhs.net
Service Lead for:	Biochemistry / Immunology
Name:	Dr Paula Garland
Tel:	Routine Hours – contact via Haematology secretaries on Ext: PRUH 64265
Email:	p.garland@nhs.net
Service Lead for:	Haematology / Blood Transfusion
Name:	Dr Meenal Gupta
Tel:	Via Histology office on 01689 864311/2
Email	meenalgupta@nhs.net
Service Lead for:	Tissue Sciences
Name:	Aileen Boyd
Tel:	020 3299 4363 (DH)
Email	aileen.boyd@nhs.net
Service Lead for:	Infection Sciences
Quality Manager (s)	
Biochemistry	
Name:	Julie Jordan
Email:	julie.jordan@synnovis.co.uk
Blood Transfusion	
Name	Cristina Lobato
Email	cristina.lobato@synnovis.co.uk
Haematology	

Name	Paulo Leite
Email	paulo.leite@synnovis.co.uk
Tissue Sciences (Histology & Non – Gynae Cytology)	
Name	Karen Boniface
Email	karen.boniface@synnovis.co.uk mailto:Karen.boniface@nhs.net
Infection Sciences (Microbiology & Virology	
Name	Florina Mamaische
Email	florina.mamaische@synnovis.co.uk

1.3 Definitions

Term	Definition
PRUH	Princess Royal University Hospital
MHRA	Medicines and Healthcare products Regulatory Agency
HTA	Human Tissue Agency
LIMS	Laboratory Information Management System (Epic Beaker)
GP	General Practitioner

2. Pathology Quality Policy

The requirements of a Quality Policy for the Synnovis Pathology laboratory, Princess Royal University Hospital, Bromley and South sites are covered by the Pan Synnovis Statement of Purpose PATH-Q-POL2.

3. Laboratory Services

3.1 Laboratory Routine Service

Biochemistry – Laboratory operates a 24/7 service
Routine: Monday - Friday: 08.00 – 20:00 (17:00pm – 20:00pm reduced service)
Haematology – Laboratory operates a 24/7 service
Routine: Monday - Friday: 08.00 – 20:00 (17:00pm – 20:00pm reduced service)
Blood Transfusion – Laboratory operates a 24/7 service
Routine: Monday - Friday: 09.00 – 20:00 (17:00pm – 20:00pm reduced service)
Infection Sciences (Microbiology & Virology)

Routine Monday - Friday 09:00 - 17.30 Routine samples: all samples received before 16:30 will be processed that day. Samples received after this time will be processed the following day **Bank Holidays** Saturday morning service 08:00 - 13:00, Out of hours service 13:00 - 9:00am next working day
Tissue Sciences (Histology & Cytology)
Histology Routine Hours: Monday - Friday, 07:30am - 17:00pm **Cytology** laboratory operates **Monday - Friday 08:00am -16:00pm** **Out of Hours (including Bank holidays)**: There is no out-of-hours service available

3.2 Urgent Requests

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

- Request forms marked 'urgent' will not be processed with any priority in the absence of verbal notification.
- Results will not be telephoned unless this has been agreed or the results meet the critical telephoning criteria.

For more details, refer to the individual laboratory sections

3.3 Action points for proper use of laboratory service

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 & paper, EPIC/Beaker in secondary care and GP tQuest ordering in primary care.

The criteria for acceptance reduces 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 name and date of birth. It is accepted that there are very rare and exceptional circumstances where this cannot be achieved.

3.4 Synnovis Phlebotomy Service

The Synnovis Phlebotomy team currently provide a service for adult inpatients, paediatric inpatient & outpatients that was implemented on 1st Nov 2021 – 7 days per week service.

This service is **NOT** managed by the PRUH Pathology.

PRUH Adult inpatient area/ward (x2 rounds – depending on area/ward)	07:00 – 10:00 & 13:00 – 15.30 - Mon-Fri
PRUH Paediatric inpatient area / ward	07:00 – 10:00 & 13:00 – 15.30 - Mon-Fri
GP Paediatric outpatients clinic appointments	09:00 – 17:00 - Mon-Fri
Ward Rounds: Saturday & Sunday	07:00 – 12:00 Mid-day

In the event of any query or problem, please contact the

Synnovis Phlebotomy Team Leaders: Ext: 01689 864313 / Internal Direct line – 64313

Synnovis on-call Phlebotomy contact number: 07597 018645

(NOTE: the Synnovis on-call contact is not always on-site)

- Ensure that request forms are completed correctly.
- The phlebotomist cannot add or alter details on the request forms.
- Paediatric outpatients arriving for a Blood Test appointments must be provided with a GP Test Request form by the requestor – phlebotomy staff are unable to print a copy.

3.5 PRUH Phlebotomy Service - paediatrics

Phlebotomy clinics for GP paediatric patients require an appointment; these can be booked by either telephoning or emailing or via the GP surgery:

☎ 01689 864313

Email: kch-tr.phlebotomy-adult-manager@nhs.net

3.6 PRUH Phlebotomy Service - adults

GP Patients with special requirements and hospital clinic patients – can be bleed at the PRUH Outpatient C department – walk-in (ticketed) service [09:00 – 17:00 Mon-Fri]

3.7 Direct Access Community Adult Phlebotomy service (adults)

The Trust Phlebotomy service currently continues to manage the Bromley & South sites (Orpington & Beckenham Beacon).

Phlebotomy clinics for GP Adult patients require an appointment; the appointments can be booked by either telephoning or emailing Bromley GP Alliance (BGPA) or via the BGPA website,

☎ 0203 930 0245

✉ www.bromleygpalliance.org

Phlebotomy service - book online | Bromley GP Alliance

4. Results and Sample Identification

4.1 Hospital Requests

All in-patient and out-patient requests (secondary-care) are ideally made electronically via EPIC/Beaker.

EPIC will generate the required number of sample labels for the number and type of sample bottles required to match the requested tests.

There is an icon on all Trust PC desktops.

Paper forms will only be accepted if the system is unavailable and downtime procedures are in operation. Forms are available from the EPIC downtime pack on all Trust PC desktops.

Please check that the patient details are correct.

If the details on the printed request do not match the details on the wrist-band of the patient, the phlebotomist will not be able to collect the sample and the ward staff/ doctor will be notified.

There are mandatory fields in the EPIC form for clinical details, bleep number and telephone extension. Please ensure that all these are completed.

Any paper request forms submitted must comply with requirements:

- Always include the patient's fore name and last name, hospital number and date of birth
- The hospital number is essential, particularly for blood cross-matching requests.
- It is very important to write the patient's name clearly and legibly because it is difficult to retrieve results from the Pathology computers if even one letter in a name is not clear.
- Always include the date of birth (DOB), gender and ethnicity; these can affect the reference range provided for some of the results.
- Complete other details as requested on the form, particularly clinical information including date of symptom onset, the date of the specimen, relevant drug therapy and 'infection risk' information.
- Request forms are ideally signed and dated by those collecting the specimen.
- State on the form if the request has originated from a private patient source.

The requesting doctor must sign the request form, print their name and bleep number legibly to enable direct contact for clinically significant results or queries regarding the request.

4.2 GP Requests

The vast majority of GP test requests are ordered electronically, via tQuest.

tQuest will generate the required number of sample labels for the number and type of sample bottles required to match the requested tests.

As with any tests requests, these electronic request orders must be completed in full, this is to provide the laboratory staff with the correct information in order to:

- Uniquely identify the patient.
- Ensure all required investigations are selected and requested
- Ensure results correct interpretation in the context of the clinical information included
- Ensure reports are returned to the correct destination and requester of the tests

These criteria are essential on all request forms which patients present to the phlebotomist.

4.3 Labelling samples

All samples MUST be labelled ONCE the specimen is in the container.

If for practical reasons the container must be labelled first, then if the specimen container is not used it MUST be discarded immediately considering Information Governance (IG) and the responsibility of ensuring the patient demographics are not compromised.

Specimens must be labelled in permanent ink in the patient's presence. The specimens must be labelled with reference to the request form or system generated labels.

It is not good practice to use the notes to label specimens; you may be looking at the WRONG ones.

It is essential that the samples are labelled immediately with the patient's full name, date of birth, and NHS number or hospital number (whichever is relevant).

- If samples are left without having been labelled, there is a possibility there could be confusion with unlabelled samples from another patient.
- The samples should be bagged at the earliest convenience with the appropriate forms and sent directly to the pathology department or the nearest point for collection.
- Never use pre-labelled tubes; label after specimen collection
- Samples must be labelled by the person collecting the sample
- When collecting multiple specimens, at different times, for the same investigations e.g. glucose tolerance tests ensure that each can be clearly identified with the time each specimen was collected.
- All request forms and samples, (blood, urine, tissue or any other) must have all identifiers present.

4.4 Mislabelled specimens

If the sample is unsuitable for analysis in anyway it will not be analysed. This is to avoid risks to patients. The labelling details on the sample must be complete and must match exactly with those on the accompanying request form.

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

Sample rejection and discard will be noted electronically on the Pathology computer system and a report issued in the normal manner. Due to internal pressures, the laboratory will not be able to directly inform the requesting clinician that a sample has been rejected and discarded.

Where the rejection and discard policy would be exceptionally detrimental to patient care, i.e. where the specimen is not repeatable perhaps a biopsy or 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.

A disclaimer will have to be signed by the requester to 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.

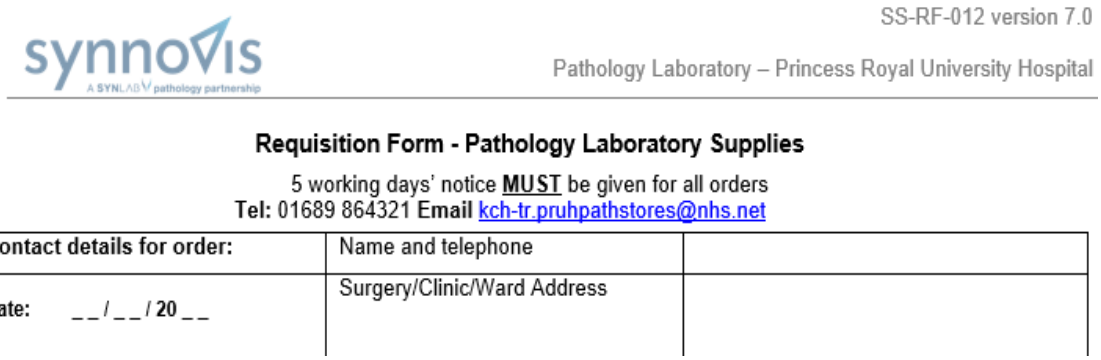
The laboratory cannot accept any responsibility for such results and the actions taken.

For labelling of Transfusion samples see section 14.

5. Supplies

Users are requested to maintain adequate supplies. The laboratory is not always able to meet requests on demand.

- Stocks of specimen containers are available from the laboratory using the appropriate requisition order form. These must clearly state the requirements and destination for the consumables.



SS-RF-012 version 7.0

Pathology Laboratory – Princess Royal University Hospital

Requisition Form - Pathology Laboratory Supplies

5 working days' notice **MUST** be given for all orders
Tel: 01689 864321 **Email** kch-tr.pruhpathstores@nhs.net

Contact details for order:	Name and telephone	
Date: __/__/20__	Surgery/Clinic/Ward Address	

- For consumable requests from Trust users, delivery of stores between the south sites is by twice-weekly hospital transport. Allow for 2 working days plus any delivery delay when making your order.
- Whilst every effort is made to meet the needs of users, it is not always possible to fill urgent telephoned orders immediately.
- It is important to rotate stock and ensure that any nearing expiry date is returned to the laboratory for use elsewhere or if expiry has been exceeded, stock is discarded.
- It is the duty of the requesting doctor/ specimen collector (e.g. phlebotomist) to ensure samples are sent to the appropriate dispatch point and onwards to the laboratory.

6. Instructions for the transport of samples to the hospital laboratory

Owing to the unknown nature of a patient sample, it is imperative that pathological specimens are transported in a manner in which 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.

Therefore, there is a need to ensure that all specimens are safely handled, contained and transported from the patient to and between laboratories.

It is the responsibility of those sending specimens from locations within the Trust but not on the PRUH site, i.e. those areas that cannot deliver samples via the pneumatic tube or by hand, that the correct procedures are observed and that they obtain a supply of the approved containers, labels and transport boxes.

All pathological samples must have:

6.1 Primary receptacle

- *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.

6.2 Secondary packaging

- *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 paperclips.
- 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.

6.3 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 transport 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.

6.4 Transport of specimens by road

The transport of most specimens from the General Practitioner's surgeries or outreach clinics to the hospital laboratory is provided by GSG couriers on behalf of Synnovis and 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.

6.5 Inter-hospital site transport

Samples are retrieved from designated collection points at Orpington and Beckenham Hospitals, and the regular inter-hospital transport provided by GSG, will collect and deliver the samples to pathology. There are transport runs between the PRUH laboratory the DH site and the Hub laboratory at Blackfriars too.

Samples from patients seen by GP's or patients from community based clinics can leave specimens at the designated collection points at those locations for collection and transport to pathology by GSG couriers. The GP teams may also deliver samples themselves to the phlebotomy out-patient collection points at Orpington and Beckenham Hospitals, or directly to Pathology Specimen Reception at the Princess Royal University Hospital, Level 2, South Wing.

Semen samples for post vasectomy samples can only be accepted at designated times, see below (seminal fluid samples).

To maintain their integrity, specimens must be transported to the laboratory as soon as possible after collection. Delays in the transport of microbiological specimens may cause a loss of viability of fastidious organisms, or an inability to detect potential pathogens because of overgrowth by commensal bacteria.

When this is not practicable, store specimens at 4°C until the next available transport.

Do not freeze samples, unless specifically requested to do so. Ideally Blood Sciences specimens need to be receipted and prepared on the same day as collection. If the inter-site scheduled transport has finished specimen transfer, other means may need to be arranged.

Contact with the laboratory will be necessary if samples are to be sent requiring urgent results.

6.5.1 Contact details for transport issues

Contact Synnovis customer services via: synnovis.customerservices@nhs.net

6.6 Internal Transportation by Pneumatic Tube system

On the PRUH site, 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 PRUH Pneumatic Tube System (an air tube system) propels cylindrical containers (transport PODs) through a tube by compressed air or by partial vacuum. There are 2 tubes; 1 that serves ED alone and another that serves the majority of the rest of the hospital. There are POD stations in various locations across the site, some wards will share a pod station.

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).
- The correct colour pod is used, ED use yellow pods, critical areas use red - **All items entered into 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)*

6.6.1 Breakdowns of pneumatic-tube system

If you suspect the system is not working, put a notice on the station saying 'temporarily out of order' and contact Vinci (Facilities) by contacting the ISS helpdesk on 63377. The system **is not** the responsibility of the laboratory and therefore they cannot resolve functionality issues.

7. Health and Safety precautions

Health & Safety at Work Act

It is the duty of every employee to take reasonable care for the health and safety of their self and other persons who may be affected by their actions or omissions at work.

Specimens must be packed correctly. It is the responsibility of the requesting doctor or the staff collecting and sending the sample to ensure that the specimen is transported safely and arrives in the laboratory. Laboratory responsibility starts when it arrives in pathology.

7.1 Inoculation (sharps) Injuries

- Current guidelines must be followed so as to avoid needle stick injuries to those taking, transporting and processing samples.
- When blood gas specimens are sent for analysis in the original syringe, it is absolutely prohibited for the needle to be left in situ on the syringe. The syringe must be sealed using an approved cap. Specimens arriving in the laboratory with the needles still in situ will be discarded immediately without processing.

7.2 Infectious Hazards

General requirements and good practice:

- If a Pathology paper request order form is used do not contaminate it with the sample.
- Ensure that the sample container is correctly sealed.
- All samples must be placed in individual plastic ‘kangaroo’ type sample bags to avoid cross contamination. (Primary receptacle) – refer to section 4.7 above
- Under the Health & Safety at work Act, it remains the responsibility of the requester to provide information about potential or known high-risk samples. This information should be provided with the clinical details.

8. Results

8.1 Reporting results

Where references ranges are applicable for results, they will be published on the report with the test result.

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 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 which happens at 15 minute intervals.

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

8.2 Telephoning results

Results will only be telephoned through 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.

8.3 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, the laboratory should be contacted immediately. 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.

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.

8.4 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 with a senior member of staff who are always willing to discuss the accuracy and confidence limits of any test, selection of appropriate tests and the significance of any result.

8.5 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 will be documented within the patients' health records.

9. Point of Care Testing

The laboratory at the PRUH does not participate in any Point of Care Testing (POCT) – testing in the near vicinity of the patient. All POCT is managed by the Trust although the laboratory is represented on the POCT committee in an advisory capacity only.

10. Risk Management

The pathology department investigates any relevant incidents reported to them irrelevant of the source.

The Trust uses InPhase, an electronic incident reporting system.

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).

11. Research

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

12. Private Tests

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

13. Haematology Department

The Laboratory undertakes routine Haematological investigations, which include FBC, ESR, Coagulation and Thrombophilia.

13.1 Department key contacts

Monday - Friday: 08:00 – 17:00 and Outside of core hours

- Haematology telephone number for results query call Specimen Reception: PRUH 016898 **64266**
- Haematology Laboratory Manager – Lisa Cook Ext: **64262** or email lisa.cook@synnovis.co.uk
- Haematology Laboratory – Extensions: **64257/64258**
- For clinical advice please contact the Duty Haematology clinician in the first instance – **Bleep 156** or via switchboard
    - **Routine Hours** – contact Haematology secretaries on Ext: **64265**, who will direct your query
    - **Out of hours, weekend and bank holidays** - contact on-call Haematology clinician via switchboard

13.2 Haematology (PRUH) Opening hours

The Laboratory operates a 24/7 service

Routine: Monday - Friday: 08:00am – 20:00 (17:00pm –20:00pm reduced service)

- Non-urgent samples should arrive in Specimen Reception (SR) between 09:00-17:00
- Routine profiles are performed daily (Mon-Fri)

Out of Hours: 20:00 – 08:00am Monday – Friday, and 08:00am Saturday – 08:00am Monday

- Bleep the Biomedical Scientist (BMS) on **Bleep 311** at any time outside normal working for urgent requests

13.3 Location

- Pathology, Level 2, South Wing, Princess Royal University Hospital (PRUH)

- For Synnovis Analytics website: www.synnovis.co.uk

13.4 Sample Requirements

Remember to:

Use the correct specimen bottles and ALL sample labels must include:

- Patient's full name (first name & last name)
- Date of Birth (DOB)
- NHS/hospital number
- Date sample was taken

The details on the sample and request **must** match exactly (where applicable). The laboratory staff cannot alter incorrectly or inadequately labelled samples. The laboratory report will notify the requester of inadequately or incorrectly labelled samples/request forms that will be retained in the laboratory for inspection until the next working day. In addition, rejected requests from SCBU, ITU and ED will be communicated by telephone.

- Ensure the specimen bottle and form (where applicable) are sent separated in a clear sample bag
- Specimen bottles are tightly sealed to avoid leakage in transit
- Inadequately or unlabelled labelled samples will not be processed and will be discarded
- Ensure that requests made via the EPIC/ tQuest systems have a barcode label affixed that contain all patient details listed above and include the requested test assays (if the date collected is different to the printed label, amend the date of collection)
- Clinical details, indication for request and date/time of operation (see individual sections) should be indicated on request form or electronic EPIC /tQuest request.

13.5 Haematology Critical Phoning Limits

The abnormal/critical results will be communicated directly to a member of clinical staff as soon as they are technically validated. The criteria for critical phoning results are based on the recommendations of the Royal College of Pathologists and these are available on request.

13.6 Tests available on an emergency basis

The following tests are available on an emergency basis for the immediate diagnosis and management of **in-patients** after normal working hours, Saturday, Sunday and Bank Holidays:

Tests	Containers
Full Blood Count; WBC differential, Hb, RBC indices, PLT, WBC	EDTA anticoagulant – all 4ml bottle (purple top)
Retics	EDTA anticoagulant – 4ml bottle (purple top)
ESR	Adult – 4ml bottle (purple top) only
Malaria Screen	EDTA anticoagulant – 4ml bottle (purple top), state country visited and when
Clotting screen	Citrate anticoagulant (turquoise top) – 2.7ml bottle filled to the line
Anti-Xa (Unfractionated Heparin)	Citrate anticoagulant (turquoise top) 2.7 ml bottle filled to the line/arrow
Clauss Fibrinogen	Citrate anticoagulant (turquoise top) 2.7 ml bottle filled to the line/arrow

D-dimer	Citrate anticoagulant (turquoise top) 2.7 ml bottle filled to the line/arrow

13.7 Repertoire

Refer to Appendix 1 Blood Sciences Test Repertoire – at the end of this document. Contact laboratory if further information required.

13.8 Key factors known to affect the performance or interpretation of Haematology investigations

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:

13.8.1 Full Blood Count

- Clots present in the sample
- Sample is more than 24 hours old
- Lipaemia
- Haemolysis
- Exposure to heat or warmth for prolonged periods

13.8.2 Clotting samples

- Clotted samples or presence of small fibrin clots
- Samples >4hrs old (Potential for factor deterioration)
- Samples >12hrs old are unsuitable for analysis
- Lipaemia
- Haemolysis
- Exposure to heat or warmth for prolonged periods
- Under filled (sample over diluted by anticoagulant) or overfilled samples

13.9 Requesting extra tests

- Full blood count (FBC) samples are retained under temperature controlled conditions for a maximum of 3 days. The integrity of the sample for FBC and ESR analysis is no longer valid after a period of 24 hours for FBC.
  If the sample has been stored in a manner that will maintain its integrity, there are some extra tests that will still be valid up to 7 days after sample collection e.g. Hb electrophoresis.
- Anticoagulant samples are stored for 24 hours under temperature-controlled conditions after which time they are no longer suitable for retesting.
- In circumstances where further or more specialised testing is required, a request must be made as soon as possible within 24 hours after specimen collection so that arrangements can be made for the plasma to be aliquoted and frozen at

  -20°C.

13.10 ANTICOAGULATION GUIDELINES

Refer to pages on http://hww-kingsweb

13.11 Haematology derived reference range source

Ranges have been derived from a number of reputable sources.

1. Adult normal FBC & ESR ranges derived historically from *Practical Haematology, Dacie & Lewis (unknown edition but circa 2010).*

   All ranges derived from the validation and verification (V&V) of equipment across all Synnovis sites as part of the transformation to the new Target Operating Model.

2. Due to the ethical issues surrounding the generation of internal ranges, reference ranges for children are derived from published sources, *BCSH Guidelines for Neonatal Haemostasis and Thrombosis, 2002 and Paediatric Haematology, 2nd edition JS Lilleyman et al 1999.*

   All ranges were reviewed with clinical approval.

14. Blood Transfusion

14.1 Department key contacts

Monday – Friday 08.00 – 20.00 (17.00 – 20.00 reduced service) and out of hours:

- Routine Hours - PRUH Blood Transfusion Laboratory **–** Ext: **64329**
- Out-of-Hours - BT Bleep **311**

Please Note - that this is a very busy bleep during the out of hours periods. The bleep will be answered - response may not be instant at busy times. Please be patient and refrain from repeating bleeps in quick succession because the bleep-holder cannot reach you whilst your extension is off the hook.

- **Please note** that during core working hours Bleep **311** is reserved for Major Haemorrhage Code Red/ Trauma use (Hospital use only).
- Blood Transfusion Consultant Haematologist – Contact via switchboard
- For clinical advice please contact the Duty Haematology Clinician in the first instance – **Bleep 156** or via switchboard
- Blood Bank Laboratory Manager – Kenneth Amenyah on Ext: **64249** or email kenneth.amenyah@synnovis.co.uk
- Transfusion Practitioners – Sue Cole, email s.cole@nhs.net or Hayley Allen, email hayley.allen2@nhs.net Ext: **64282** or WiFi phone **65423**

14.2 Blood Transfusion (PRUH) Opening hours

The Laboratory operates a 24/7 service

Routine Hours

- 08:00 – 20:00 Monday – Friday (17:00 – 20:00 reduced service)

Out-of-Hours

- 20:00pm – 08:00am Monday - Friday
- All day Saturday and Sunday as well as Bank Holidays

- Routine Group and Screen requests MUST be received by 18:00 for guaranteed same day processing
- **During Out of Hours periods, urgent blood and blood product requests MUST be bleeped to the Out of Hours BMS on Bleep 311**

- For special blood product requests (e.g., requests for HLA matched platelets) notification is required 24 hours prior to usage). These cannot be ordered outside routine hours.
- Patients with a history of antibodies MUST be discussed with the BMS staff as there may be a delay in blood provision.
- When blood and blood products are ready, a comment notification will be sent to the results section for the patient on the EPIC system stating *'Please check EPIC for details'*. If unable to access and view - please call the laboratory for information relating to the availability of blood and blood products.

14.3 Location

- Pathology, Level 2, South Wing, Princess Royal University Hospital (PRUH)
- For Synnovis website: www.synnovis.co.uk

14.4 Sample Requirements

- Group and Screen samples must be taken in Pink Top 6ml EDTA bottles.

All blood transfusion samples MUST be labelled with

- Full Name (Surname & Forename)
- Hospital and/or NHS number
- Date of birth
- Date of collection
- Time collected
- ID person taking the sample (or signature if sample is handwritten)

Samples received without a request form will be rejected on the basis that the form was not used to positively identify the patient.

At the patient bedside at the time of venepuncture

- Ideally all Blood Transfusion samples will be labelled with a BloodTrack label. If not, the sample MUST have a handwritten label that will only be accepted when accompanied with a downtime form.
- Any sample with details missing or incorrect in any of these fields will be rejected and a repeat sample required.
- Wrongly labelled samples CANNOT be amended once they have been received in the laboratory.
- Incorrectly labelled specimens will be discarded.
- Samples CANNOT be shared with another department

Samples labelled with non-BloodTrack addressograph labels are not accepted for blood transfusion. If the sample demographics do not match, the sample will be rejected and the ward telephoned. If blood is required, inform the laboratory Biomedical Scientist (BMS) on the cross-match bench.

BloodTrackers – Hand held a Personal Digital Assistant (**PDA**) allows ward staff to scan & collect the patient's ID from their wristband, print transfusion sample labels, print Pickup Slips, administer blood components/products and record observations.

The BloodTracker also enables direct fating of all units at the bedside when the transfusion is commenced, thus improving traceability and reducing the workload within the laboratory.

14.5 Sample Validity

- Patients transfused or pregnant in the last 3 months: the sample is valid for up to **72 hours** (incl. product reservation period)
- Patients **not** transfused and **not** pregnant in the last 3 months: the sample is valid for up to 7 days

14.6 Instructions for completing request forms

Clerical errors account for the majority of Blood Transfusion Adverse incidents

Requests for blood must indicate:

- No. of units requested and the type of product required
- Time and Date for which blood is required
- Ward or location of patient
- Any special requirements (i.e. irradiated, CMV negative etc.)
- Any previous antibodies detected
- If previously transfused, state when and where
- Urgent requests - telephone the laboratory or out of hours bleep biomedical scientist on duty.

Requests for blood to cover routine surgery:

- Requests where possible should be in the Blood Bank one clear working day prior to surgery - please give a contact ext. or bleep number.
- A previous Group and Screen sample may be suitable for providing cross-matched blood. Contact (PRUH) **64329 Routine Hours** for more information.

14.7 Requests for Blood Products should be made to Blood Transfusion (PRUH)

Laboratory contact extension Ext: 64329

Test	Samples required
Group & Screen/Cross Match	6ml K2E (EDTA) (pink top)
Direct Antiglobulin Test	6ml K2E (EDTA) (pink top)
Kleihauer	6ml K2E (EDTA) (pink top)
Baby group (aged up to 4 months)	1 ml (EDTA) (pink top)

14.8 Useful Links

Refer to pages on Home Page - Kingsweb by searching for the following topics;

- Blood Transfusion Policy
- Use of Blood Components
- National Blood Service
- Transfusion Reaction Form
- Consent for Blood Transfusion Support and the Patients that Refuse
- Maximum Surgical Blood Ordering Schedule (MSBOS)
- Code Red Policy

14.9 Cross-match Requirements

- Please give as much notice as possible when ordering blood, particularly if patient is known to have atypical red cell antibodies

- **Two Sample Rule -** TWO valid Group and Screen samples must have been **received** in the PRUH laboratory for cross-matching- these **must** have been **taken on separate occasions from separate venepuncture episodes**. (X2 samples received together are counted as 1 venepuncture episode.)
- If a patient has been transfused in the past, depending on when the transfusion occurred, a fresh sample may be required – Refer to section on 14.5 Sample Validity (above).

14.10 Collection of Blood

- When blood and blood products are ready, a comment notification will be sent to the results section for the patient on the EPIC system stating 'Please check EPIC for details'. If unable to access and view - please call the laboratory for information relating to the availability of blood and blood products.
- Approved documentation to provide patient identification is mandatory (i.e. prescription chart - ICP)

Before administering any blood it is essential to check that the details on the blood bag and compatibility report match, and the patient has been positively identified (if possible) and the patient ID number on their wristband has been checked.

Check:

- Last name, First Name, Date of Birth and Hospital Number on Blood Component Label and Prescription Form
- Blood component number and expiry date on the unit itself, tag on the unit and Prescription form
- Date, Time and Sign the Blood Bank Register to record collection and removal of the component or follow the Blood Track process for blood collection.
- This is obligatory for recording the **Cold Chain** of blood components; this is a legal requirement

14.11 Repertoire

Refer to Appendix 1- Blood Sciences Test Repertoire – at the end of this document. Contact the laboratory if further information required.

14.12 Key factors known to affect the performance or interpretation of Blood Transfusion testing

Samples will be rejected by the Laboratory for the following reasons as this may affect the integrity and reliability of the testing process

- Haemolysed samples (e.g. due to poor collection, storage or transport)
- Samples with insufficient volume
- Lipaemic samples
- Samples which have been stored out of temperature control
- Mislabelled/ unlabelled samples

14.13 Requesting extra tests

All blood transfusion samples are stored under temperature-controlled conditions for seven days. Requests for further analysis must be received within this period.

15. Biochemistry Department

The Biochemistry department provides a large range of analytical services.

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

Clinical advice is available from the Consultant Chemical Pathologist and Consultant Clinical Scientists during routine hours and out-of-hours – refer to section below for contact information.

15.1 Department Key contacts

Monday - Friday: 09.00am – 17.15pm

- Biochemistry telephone number for results query and add-on tests call Specimen Reception: PRUH 016898 64266
- Biochemistry Laboratory Manager – Lisa Cook Ext:**64262** **L**isa Cook – lisacook1@synnovis.co.uk
- Core Hours 08:00 – 20:00pm (17.00pm - 20:00pm reduced service) Biochemistry Laboratory - Ext: **64256**
- BMS - Out of hours, weekend and bank holidays: Ext. **64256** or **Bleep 312**
- For **Clinical Advice** during routine hours please contact the Duty Biochemist: 0204 591 0025 (Hub DB office) or synnovis.dutybiochemist@nhs.net

If applicable the enquiry may be referred to the Chemical Pathologist for clinical advice.

Out of hours – on-call duty Consultant is available for advice – Via KCH switchboard **020 3299 9000**

15.2 Biochemistry (PRUH) Opening hours

The Laboratory operates a 24/7 service

Monday - Friday: 08:00 – 20:00 (17.00 - 20:00 reduced service) • Non-urgent samples should arrive in Specimen Reception (SR) between 09:00-17:00 • Routine profiles are performed daily (Mon-Fri)
Out of Hours: 20:00 – 08:00, Monday – Friday, and 08:00am Sat – 08:00 Monday • Chemistry Laboratory - Ext. **64256** or **Bleep 312**

15.3 Location

- Pathology, Level 2, South Wing, Princess Royal University Hospital (PRUH)
- For Synnovis website: www.synnovis.co.uk

15.4 Repertoire

Refer to Appendix 1- Blood Sciences Test Repertoire – at the end of this document. Contact laboratory if further information required.

15.5 Sample Requirements

Remember to: - Use the correct specimen bottles (EPIC and tQuest labels will inform the type and number of bottles required).

ALL sample labels must include:

- Patient's full name (first name & last name)
- Date of Birth (DOB)
- NHS/hospital number
- Date & time sample was taken

- Specimen bottles are tightly sealed to avoid leakage in transit
- Additional tests can often be performed with only a small increase in sample volume - the volumes shown on EPIC or tQuest need not always be accumulated.

15.6 Biochemistry Critical Phoning Limits

The abnormal/critical results will be communicated directly to a member of clinical staff as soon as they are technically validated. The criteria for critical phoning results are based on the recommendations of the Royal College of Pathologists and these are available on request.

15.7 Requesting extra tests

Most specimens are stored in the laboratory for 2-3 days, after which time they are discarded. Some specimens are kept for longer.

If additional testing on a specimen previously sent to the laboratory is required within 48 hours of collection, please raise a **'Add-on test'** request via Epic.

If more than 48 hours has elapsed since specimen collection, please contact a member of the laboratory's clinical staff before proceeding. Some tests require special handling and will be unsuitable to be processed unless specified collection criteria are followed.

Very abnormal results are seen and authorised by clinical staff and they may add further tests to the request.

16. Tissue Sciences (Histology & Cytology)

Histology

Histopathology is the study of the causes and effects of disease related to changes in the cells and tissues of the body. Tissue samples are studied microscopically to establish the cause of illness. We undertake a full range of routine diagnostic tests; including gross specimens, endoscopic, open biopsies (including skin), needle biopsies and curettings together with immunocytochemistry and frozen sections services. The service provides essential information to clinicians in the process of diagnosing cancer and other diseases. The repertoire of tests performed in this department are not currently UKAS accredited.

Cytology

Cytology is the study of cells. Cellular material can be obtained from any organ or site from the body by different methods such as:

- Natural voiding (urine and sputum)
- Lumbar puncture (cerebro spinal fluid)
- Aspirations from serosal fluids (pleural, peritoneal) or from suspected lumps or cysts
- Surface scrapings/ brushings (cervical sampling and endoscopic brushings)

Cells obtained from these specimens are processed and examined microscopically in the laboratory enabling the cytology department to make benign, pre-malignant or malignant diagnosis.

16.1 Department key contacts

- Histology Main Laboratory - Ext: **64314**
- Histology Cut-up Room Ext: 64317
- Cellular Pathology Laboratory Manager – Lyn Golding - Ext:**65853** lyn.golding@synnovis.co.uk
- Histology Secretaries/Results Query – Ext: **64311 / 64312**
- Cytology Results Query – Ext: **64310**
- For **Clinical Advice** about a case call the histology office on 01689 864311/2 or generic e-mail kch-tr.histology@nhs.net where upon the query will be directed to the relevant Consultant Pathologist

16.2 Tissue Sciences Opening hours

Histology Routine Hours: The Histology laboratory operates **Monday-Friday, 07:30 - 17:00**.

- Requests for frozen sections **must** be arranged with the laboratory (see table above for contact details) at **least** two working days in advance of any procedure.

Cytology Routine Hours:

The Cytology laboratory operates **Monday, Tuesday, Thursday & Friday 08:00 -17:00**

Wednesdays 08:00 -16:00

Histology /Cytology - Out of Hours (includes Bank holidays) :

There is no out-of-hours service available

16.3 Location

- Tissue Sciences Laboratory, Level 2, South Wing, Princess Royal University Hospital (PRUH)
- For Synnovis Analytics website: www.synnovis.co.uk

16.4 Repertoire - Histology

Routine Histology

- Tissue must be placed in 10% formal saline as soon as possible.
- Use a specimen container that will contain the specimen plus ten times the specimen volume of 10% formal saline if possible. (Containers are ordered from pathology on the appropriate request form)
- Label according to the instructions in section 4.3 and send to the laboratory without undue delay.

Frozen Sections

- Frozen section diagnosis must be booked by telephone with the laboratory at least two working days in advance.
- Whenever possible the patient should be first on the operating list.
- Arrange for the unfixed frozen section specimen to be brought directly to the laboratory via specimen reception.
- The specimen must be handed to a member of histology staff and must be accompanied with a completed request form. (The form must have details of the theatre as well as contact telephone number for the report to be telephoned through to.
- If the procedure is cancelled the laboratory must be informed.
- Due to the need to maintain and decontaminate frozen sectioning equipment, the laboratory may not be able to provide a frozen section service at certain times. Availability of this service can only be guaranteed if the laboratory is given adequate prior notice.

High Risk Specimens

- Specimens known to be High Risk cannot be handled unfixed by the department.
- These cases must be immersed in a large volume of fixative before transporting to pathology.
- The nature of the high risk must be clearly legible in the clinical details on the request form. This includes all patients who are known or suspected to have a reportable disease.

16.5 Repertoire – Cytology

Sputum Specimens

- Sample containers and vials **MUST** be fully labelled.
- Sputum specimens should be collected in the early morning.
- Only one specimen per day should be sent.
- No more than three specimens should be sent on any individual patient.
- Sputum specimens for cytology are discouraged in patients with chest infections.
- Avoid sending specimens for 7 - 10 days after bronchoscopy to avoid false positives.

Urine Specimens

- Sample containers and vials **MUST** be fully labelled.
- Urine specimens should consist of the whole or as much of the whole voided specimen as possible in a 30ml universal container.
- Mid-stream specimens are not ideal since abnormal cells are usually present in either the first or last part of the voided urine specimen.
- Urine samples that are unlabelled will not be processed.

****DO NOT USE UNIVERSALS CONTAINING BORIC ACID (Red top)****

Fluid from Pleural, Peritoneal, Pericardial, Joint Cavities and Cysts

- Sample containers and vials **MUST** be fully labelled.
- These samples should be collected in a 30ml universal container.

Fine Needle Aspirates (FNA)

- Fine needle aspirates should be sent to the laboratory previously air-dried &/or wet fixed on glass slides.
- Please contact the laboratory for further details if necessary.

Cerebrospinal Fluids

It is strongly advised that a fresh specimen should be sent to the laboratory within one hour of collection.

- If it is unavoidable to take a CSF sample within the laboratory working hours inform the cytology department prior to the samples being taken so that they are aware and could arrive out of hours.
- Send separate specimens (using separate request forms) to Microbiology and Biochemistry. It is not ideal for CSF samples to be delayed in processing as it will result in the cell degeneration. However, if cytology are not informed, and a CSF is sent out of hours then it will be kept under temperature controlled conditions and processed on the next working day.

If specimens destined for Cytology are collected outside normal working hours, they should be kept refrigerated until sent to the department.

Bronchial Washings

- Sample containers must be fully labelled
- Fresh specimen should be placed in a clean dry universal container
- Delay in the receipt of unfixed samples can lead to deterioration of specimen
- Do **NOT** use any fixative – such as formalin

Bronchial Brushings

- Sample containers must be fully labelled
- Frosted ended glass slides must be fully labelled
- Prepared slides must be a combination of spray-fixed and air-dried (2 slides are sufficient)
- The collection brush must be placed in a universal container with 20mls Green Cytocollection fluid - ensure the brush is fully immersed with the brush facing towards the bottom of the container
- Contact the cytology department on Ext: 64310 for replacement of green collection fluid
- Do **Not** use formalin fixative

Ovarian Cyst Fluid

- Sample containers must be fully labelled
- Fresh cyst fluid samples should be put into a clean dry universal container with screw cap
- The fluid should be sent as soon as possible to minimise cell deterioration
- If there is a delay in delivering the sample to the laboratory, the sample should be kept in the refrigerator between 4-7°C
- Do **Not** use fixative – such as formalin

16.6 Sample Requirements

Remember to - Use the correct specimen containers and ALL sample labels (preferably Epic or tQuest generated) must include:

- Patient's full name (first name & last name)
- Date of Birth (DOB)
- NHS/hospital number
- Date sample was taken
- Include other relevant clinical history and type of specimen

The details on the sample container and request form **must** match exactly. The laboratory staff cannot alter incorrectly or inadequately labelled samples. The laboratory will notify requesters of inadequately or incorrectly labelled samples/request forms that will be retained in the laboratory.

- Ensure the specimen containers and form are sent separated in a clear sample bag
- Specimen containers are tightly sealed to avoid leakage in transit

Inadequately labelled samples will not be processed until the labelling discrepancy is resolved. Requesters of inadequately labelled Histology requests will be invited to attend the laboratory to amend the labelling and asked to complete and sign a disclaimer to accept full responsibility for any results generated on the specimen and then acted upon.

- Clinical details, indication for the request and date/time of operation should be indicated on the request form or EPIC request.

16.7 Tests available on an emergency basis

Urgent Histology Samples

- Clearly mark the request form URGENT.
- Specimens usually require overnight fixation and processing for optimum technical results; however in exceptional circumstances the laboratory will process 'Fresh Tissue samples' and 'Frozen Sections samples during the day. This guarantees a report being issued on that day.
- Urgent specimens should be brought directly to Specimen Reception.
- Telephoning the laboratory manager or laboratory would be helpful prior to sending a genuinely urgent sample.

Urgent Non-Gynae Cytology Samples

Urgent specimens should reach the laboratory before 14.00 hours unless otherwise specified.

16.8 Requesting extra tests

The examining Histopathologist may request additional staining techniques to be performed, or may be asked by a Consultant at a referral centre for the block to be forwarded for further examination.

Blocks and slides are retained for a period of 30 years and therefore, except in cases where there was only a very small piece of tissue, there will be specimen available for further examination.

The original wet tissue, from which blocks and slides have been made, will be disposed of after completion and authorisation of the histology report, which is approximately 6 weeks.

17. Infection Sciences (Microbiology)

There is no longer a virology department on site. All virology requests are sent to the Hub for processing. The repertoire of tests performed in this department are not currently UKAS accredited.

17.1 Department key contacts

- Infection Sciences Laboratory Specimen Reception /Results - Ext: **64269**
- Microbiology (main) Laboratory – Ext: **64342/64343**
- Infection Sciences Laboratory Manager – Ricky Stow Ext:**64322** or email ricky.stow@synnovis.co.uk
- Contact Duty Consultant Microbiologist for **Clinical Advice** - during core hours call – Tel:01689 864287
- Outside of normal working hours, contact via switchboard

17.2 Infection Sciences (PRUH) Opening hours

Routine: Monday - Friday: 09:00am – 17:30

- Routine samples (Mon-Fri); all samples received before 16:30 will be processed that day
- Samples received after this time will be processed the following day

Saturday: 08:00 - 13.00

- There is a limited service on Saturdays until 13:00 for essential specimens only

Out of Hours (OOH):

- Monday – Friday 17:30pm-09:00am**,** and from 13:00pm Saturday – 09.00am Monday

Bank Holiday:

- 13:00- 09:00 the following morning

Any **Urgent** work required out-of-hours must be requested by speaking to the on-call Biomedical Scientist (BMS) on duty. The BMS on duty can be contacted via switchboard

- All Sundays and bank holidays are also covered by an on-call service

17.3 Location

- Pathology, Level 2, South Wing, Princess Royal University Hospital (PRUH)
- For Synnovis Analytics website: www.synnovis.co.uk

17.4 Repertoire

The full repertoire of tests provided by the Synnovis organisation including Infection Sciences departments can be reviewed via the Synnovis website Test index | Synnovis

17.5 Additional information pertinent to individual tests / specimen types

Urine specimens for culture

- Patients **MUST** be instructed on the correct method to collect a mid-stream urine (MSU) to avoid contamination and a possibly misleading result.
- Urine specimens MUST be collected into boric acid containers (Red top universal containers) or a sterile white topped universal containers and sent to the Microbiology department as soon as possible after collection.
- Specimens should be kept in a refrigerator (not a freezer) overnight if necessary.
- The request MUST include all relevant clinical information, including antibiotic therapy. Clinical information is required by laboratory staff in order to interpret the bacterial growth obtained, in order to report a meaningful result

Results reporting:

- Most negative results for culture and microscopy will be available within 24 hours.
- Positive cultures with identification and antibiotic sensitivity results will usually be reported within 48 hours.
- Antibiotic sensitivity results **WILL NOT** be reported on mixed bacterial cultures (due to probable poor collection and/or storage) unless specifically agreed for clinical reasons with the Consultant Microbiologist.

Urine for TB culture (AAFB)

- This test requires three complete early morning urines collected on three consecutive days into special containers available upon request from the Pathology supplies department Ext. 64321.
- The specimens must be kept cool and sent to the Microbiology laboratory as soon as possible after all three specimens have been collected.
- Specimens are cultured for up to 42 days (6 weeks)
- Stained films for the presence of acid alcohol fast bacilli (AAFB) are NOT performed on urine specimens.

Urine for Pregnancy Tests

- N.B The laboratory performs a pregnancy test with the same sensitivity as that which is available in any chemist. It would be more cost effective to ask the patient to test their own sample, as it would give a quicker and more efficient result.
- An early morning urine specimen (EMU) should be collected into a universal container (white top), and sent to the Microbiology laboratory as soon as possible after collection.
- Specimens can be kept in a refrigerator overnight and then sent to the laboratory.
- The date of the last menstrual period (LMP) should be given on the request together with any relevant clinical details.
- Results are usually available within 24 hours.

Urine for Schistosoma / Bilharzia ova

- A terminal specimen of urine (the last few drops) should be collected into a universal container (white top)
- The urine should be collected between 10:00 and 14:00 after gentle exercise.
- Specimens should be sent to the Microbiology laboratory as soon as possible after collection
- Results are available within 24 hours.
- Please state risk factors / country of exposure.

Faeces for microbiological and/ or virology testing

- PLEASE NOTE: Faeces samples are NOT routinely processed at weekends and Bank Holidays unless with the prior agreement of a Consultant Microbiologist.
- Specimens should be collected into universal containers with a blue lid and spoon. The specimen container MUST not be overfilled and the lid MUST be screwed on tightly. Leaking specimens will be discarded without processing.
- Full clinical details, including any foreign travel, MUST be given in order for the correct investigations to be performed.
- Specimens MUST be sent to the Microbiology laboratory as soon as possible after collection. The specimen MUST be fully labelled including the date of collection. Old specimens (>4 days) will be discarded without processing.
- Hard, formed specimens will not be routinely processed.
- Specimens should be kept in the refrigerator overnight.
- Patients with positive toxin results for Clostridium Difficile will not be retested for 1 month.

Results reporting:

- Faeces for culture: results will take a minimum of 48 hours, and may take up to 5 days.
- Faeces for Rotavirus: within 24 - 48hours.
- Faeces for Virology (referred test): 10-14 days
- Clostridium Difficile toxin results: Usually within 24 hours
- Ova, cysts and parasites: Usually within 24 hours.
- Positive results (e.g. Salmonella, Campylobacter spp, and parasites) will be telephoned as soon as possible by the Microbiology laboratory. Antibiotic sensitivity results are not routinely reported. Please telephone the Consultant Microbiologists if clinical advice is required.
- Positive isolates from faeces are Notifiable Diseases.

The Infection Control department will telephone positive *Clostridium Difficile* toxin results.

Helicobacter pylori

Please note, in line with the Local Dyspepsia Management Guidelines (July 2005), faecal specimens are now required to test for Helicobacter pylori (collected as above).

Blood specimens will no longer be processed for antibody detection.

Sputum for routine bacterial culture

- Sputum specimens for culture should be from a deep cough, collected into a sterile container (white top universal container), and ideally assisted by physiotherapy or postural drainage.
- The sample lid MUST be screwed on tightly.
- Specimens of saliva or those contaminated with food particles or mouthwash will **NOT** be processed.
- Specimens collected into waxed collection cups MUST NOT be sent for processing as these specimens do not have a tight seal and constitute a Health and Safety risk to all staff during transportation.
- The specimen containers must be labelled with the patient's fore and last name, DOB, the requesting location and date sample collected, and accompanied by a completed request form.
- The request form must give full clinical details and any antibiotic therapy to enable the laboratory staff to perform the correct tests and interpret the culture results obtained in, order to report a meaningful result.
- ANY LEAKING OR UNLABELLED SPECIMEN WILL NOT BE PROCESSED

Results reporting:

- Gram films are not routinely performed on sputum specimens.
- Culture results will usually be available within 48 hours.

Sputum for TB culture

- Please see above for sputum specimen collection.
- ANY LEAKING OR UNLABELLED SPECIMEN WILL NOT BE PROCESSED

Results reporting:

- Microscopy: results available within 24 – 48 hours.
- Positive microscopy results will be telephoned to the referring clinician as soon as available.
- TB culture – all cultures are continuously monitored on the MB BACT machine at 37°C for up to 6 weeks.

Positive TB cultures will be notified to the referring clinician as soon as available.

MRSA swabs

- Please refer to the Infection Control Department (ext. 64279) or Consultant Microbiologists (ext. 64287) for advice on swabs to be taken, and the timing of swabs in relation to the antibiotic eradication regime etc.
- The laboratory is open for receipt of these specimens Monday to Friday (08:30 – 17:30) and Saturday, Sunday and Bank Holidays (09:00 – 11:00)
- Groups of swabs from each patient should be banded together.
- The majority of results will be available within 48 -72hours.
- Positive MRSA results will be telephoned to the ward or referring clinician when available by the staff of the Infection Control department.

For further information and clinical advice regarding MRSA treatment and protocol please see section for key staff and their contact details.

Genital swabs

- Separate swabs MUST be collected for Chlamydia (available from the supplies department ext.64321)
- A separate form must be completed for Chlamydia investigations.
- High vaginal swabs are routinely screened for:
  - Trichomonas vaginalis
  - Candida
  - Beta haemolytic streptococci
  - Staphylococcus aureus

If screening for a sexually transmitted disease is required, please send Urethral and / or cervical swabs.

High vaginal swabs are NOT routinely screened for *Neisseria gonorrhoea.*

Swabs for viral culture

- The swab should be collected and immediately placed into viral transport (green top swab) medium (available from the supplies department ext.64321)
- The specimen and completed request form MUST be sent to the Serology department as soon as possible.
- This is a referred test and the average turn-around time is approximately 10 –14 days.

Fungal Culture

It is not necessary to routinely culture samples from all fungal nail infections, as empirical treatment can be tried.

Specimen requirements

- Skin scrapings, nail and hair samples should be collected into folded squares of black paper, into Dermapak holders or into clean, dry sterile laboratory containers available from the Pathology Supplies department. Ext.64321

- Skin and nails should be cleansed before specimen collection to prevent bacterial or saprophytic fungal contamination of the culture.
- Samples from the cutaneous layer (skin) should be collected from the edge of the lesion using a sterile blunt scalpel blade.
- Samples from the scalp should include hair roots, contents of plugged follicles and skin scales. Hair samples should be plucked with the use of sterile forceps.
- Nails samples should be collected from any discoloured, dystrophic or brittle parts of the nail to include the full thickness of the nail. Nail scrapings are preferable for culture rather than one nail clipping.
- Specimens should be sent to the Microbiology laboratory with a fully completed request form.

Results reporting:

- Specimens for Mycology are processed approximately 2- 3 x per week.
- Microscopy results are usually available within 1 week and a report is issued.
- Fungal cultures are read weekly for up to 3 weeks.
- Positive cultures are identified and reported as soon the cultures become positive.
- Negative fungal cultures are reported after 3 weeks incubation.

17.6 Seminal fluid specimens for post vasectomy investigation

- Patients MUST abstain from sexual intercourse for 3 days prior to the production of the specimen.
- The specimen must be obtained by masturbation and collected into a clean, dry sterile container (not into a sheath, unless they are special collection sheaths containing NO spermicide). The specimen **MUST** be produced at home and the time noted on the request form.
- NB There are no facilities for the specimen to be produced at the Princess Royal University Hospital.
- The specimen MUST be brought by the patient to the Pathology Reception area (2nd Floor South Wing Zone B) at The Princess Royal University Hospital.
- Semen specimens MUST not be sent on the routine specimen transport.
- Specimens MUST arrive in the Pathology department between 0900 and 1130 Monday to Friday ONLY (excluding Bank Holidays) to allow transportation to the Reference Laboratory. Specimens received after this time cannot be accepted for processing and will need to be repeated.
- The request **MUST** be completed in the male partner's name. Forms completed in the female partner's name cannot be accepted as this contravenes Trust polices and the Data Protection Act.
- Samples MUST be given to a member of staff in the reception and NOT left in the collection box.

Results reporting:

- Specimens must be delivered to the laboratory before 16.00, Monday to Friday and will be reported the same day.

17.7 Covid-19 testing

Covid-19 tests are performed on Trust patients.

A combined nose and throat viral swab (green lid) is required for sample analysis. All other sample types (e.g. upper respiratory swabs) have to be referred to the DH site for testing as only the viral swabs have been validated on the PRUH testing platforms.

Tests are requestable via EPIC and should be labelled with the EPIC/Beaker generated label.

Specimens destined for Covid-19 testing must not be transferred between the ward area and the laboratory in the pneumatic tube but must be delivered by hand, directly to the laboratory in a red Daniels box with the lid securely fastened.

Covid-19 swabs are processed between 08.00am and 24.00, Monday – Sunday on the Panther analysers (PCR).

If authorised by KCH Trust Silver command, swabs can be tested urgently for patients presenting in the Emergency Department or patients who need testing pre-operatively.

There are 2 rapid testing platforms for the approved priority cases, the Cepheid analyser for which the TAT is approximately 1 hour and the e-Plex with a TAT of 1 ¾ hours.

All results are available via EPIC

17.8 Sample requirements

Remember to:

Use the correct specimen bottles and ALL sample labels must include:

- Patient's full name (first name & last name)
- Date of Birth (DOB)
- NHS/hospital number
- Date sample was taken

The details on sample and request **must** match. The laboratory staff cannot alter incorrectly or inadequately labelled samples. The laboratory will notify staff of inadequately or incorrectly labelled samples/request forms that will be retained in the laboratory for inspection for the rest of the day.

- Ensure the specimen bottle and form are sent separated in a clear pathology sample (form in the pouch)
- Specimen bottles are tightly sealed to avoid leakage in transit
- **Inadequately and unlabelled samples** will not be processed and will be discarded
- Clinical details, indication for request and date/time of operation (see individual sections) should be indicated on request form or EPIC request.

17.9 Tests available on emergency basis

There is a reduced repertoire of tests available on an emergency basis for the immediate diagnosis and management of a patient outside the core hours 17.30pm – 09.00 Monday - Friday, Saturday, Sunday and Bank Holidays.

Please note: that the Biomedical Scientist (BMS) covering the service outside core hours is not resident in the hospital and MUST be informed (via switchboard) of any urgent samples that require testing. If urgent samples are sent without informing the BMS, they will not be performed.

17.10 Referral Laboratories used by this laboratory

If you need to request an unusual test or one not available on the Epic or tQuest catalogues please telephone the laboratory to discuss before taking the sample. If tests are not analysed in-house, they are sent to an alternative Synnovis site or specialist referral centre for testing.

17.11 Requesting extra tests

Most specimens for microbiological investigations are best performed on fresh samples, however specimens are stored under temperature controlled conditions for 7 days after receipt in the laboratory.

Any additional investigations required should be discussed with the laboratory to ascertain suitability for further analysis.

Serology samples are aliquoted and frozen. These are maintained at -20°C for a period of 2 years. Further tests may be requested within this time-frame.

17.12 Notification of Infectious Diseases

The table below shows the infectious diseases that are notifiable in England and Wales.

Please note that 'suspected food poisoning' is also notifiable. It is not vital to send a faeces specimen for laboratory confirmation.

List of Notifiable diseases is available on the UKHSA website

Notifiable diseases and causative organisms: how to report - GOV.UK (www.gov.uk)

All laboratories in England performing a primary diagnostic role must notify UKHSA on the confirmation of a notifiable organism.

The laboratory at the PRUH reports to the UKHSA via a Lab-link - CoSurv

17.13 Urgent notification of serious Infectious Diseases

Serious infectious diseases with urgent implications for the non-hospital community, such as meningococcal infection or typhoid, require prompt notification.

Notification of an infectious disease will enable the appropriate action to be taken in the community. This action may include:

- Treating/monitoring close family or other contacts who may have been exposed to the infection (e.g. Tuberculosis, meningococcal meningitis)
- Investigation to identify the source as the infection may have been acquired from contaminated food, water or the environment (e.g. E.coli 0157, salmonella, cryptosporidiosis)
- For further information regarding infectious diseases,

18. Appendix 1 – Pathology Blood Test Repertoire (general guidance on sample volume and any special requirements)

All sample requirements are displayed on Epic & tQuest sample labels

All special requirements are available via the Procedure catalogue in Epic

Biochemistry:

Name	Sample type	Sample volume	Special requirement
Haemolysis Index	Gel SST	1 bottle (5.0ml)	
Icteric Index	Gel SST	1 bottle (5.0ml)	
Lipaemic Index	Gel SST	1 bottle (5.0ml)	
Acute kidney injury (AKI) warning stage	Gel SST	1 bottle (5.0ml)	
Anion gap	Gel SST	1 bottle (5.0ml)	
Bicarbonate	Gel SST	1 bottle (5.0ml)	
Chloride	Gel SST	1 bottle (5.0ml)	
Creatinine, enzymatic	Gel SST	1 bottle (5.0ml)	
eGFR	Gel SST	1 bottle (5.0ml)	
Potassium (K)	Gel SST	1 bottle (5.0ml)	
Sodium (NA)	Gel SST	1 bottle (5.0ml)	
Urea	Gel SST	1 bottle (5.0ml)	
Alanine Aminotransferase	Gel SST	1 bottle (5.0ml)	
Albumin	Gel SST	1 bottle (5.0ml)	
Alkaline Phosphatase	Gel SST	1 bottle (5.0ml)	
Aspartate Aminotransferase	Gel SST	1 bottle (5.0ml)	
AST/ALT ratio	Gel SST	1 bottle (5.0ml)	
AST/platelet ratio index (APRI)	Gel SST	1 bottle (5.0ml)	
Bilirubin	Gel SST	1 bottle (5.0ml)	
Bilirubin, direct (WAKO)	Gel SST	1 bottle (5.0ml)	
Gamma Glutamyltransferase	Gel SST	1 bottle (5.0ml)	
Globulin	Gel SST	1 bottle (5.0ml)	
Protein, Total (Total)	Gel SST	1 bottle (5.0ml)	
Adjusted Ca	Gel SST	1 bottle (5.0ml)	
Calcium	Gel SST	1 bottle (5.0ml)	
Magnesium (Mg)	Gel SST	1 bottle (5.0ml)	
Phosphate	Gel SST	1 bottle (5.0ml)	
Non-HDL	Gel SST	1 bottle (5.0ml)	
Triglycerides	Gel SST	1 bottle (5.0ml)	
Cholesterol	Gel SST	1 bottle (5.0ml)	
HDL Cholesterol	Gel SST	1 bottle (5.0ml)	
LDL Cholesterol (calculated)	Gel SST	1 bottle (5.0ml)	
Iron	Gel SST	1 bottle (5.0ml)	
Transferrin	Gel SST	1 bottle (5.0ml)	
Transferrin saturation	Gel SST	1 bottle (5.0ml)	
NT pro-BNP	Gel SST	1 bottle (5.0ml)	
Troponin I	Gel SST	1 bottle (5.0ml)	
Free T3	Gel SST	1 bottle (5.0ml)	
Free T4	Gel SST	1 bottle (5.0ml)	
TSH	Gel SST	1 bottle (5.0ml)	
Amylase	Gel SST	1 bottle (5.0ml)	
Amylase (Urine)	Urine		
Cortisol	Gel SST	1 bottle (5.0ml)	

Creatine Kinase	Gel SST	1 bottle (5.0ml)	
CRP	Gel SST	1 bottle (5.0ml)	
Ethanol	Gel SST	1 bottle (5.0ml)	
Glucose	Fluoride oxalate	1 bottle (5.0ml)	
Haptoglobin	Gel SST	1 bottle (5.0ml)	
Intact PTH	Gel SST	1 bottle (5.0ml)	or Potassium EDTA
Lactate	Gel SST	1 bottle (5.0ml)	
Lactate Dehydrogenase	Gel SST	1 bottle (5.0ml)	
Lipase	Gel SST	1 bottle (5.0ml)	
Procalcitonin	Gel SST	1 bottle (5.0ml)	
Progesterone	Gel SST	1 bottle (5.0ml)	
Prolactin	Gel SST	1 bottle (5.0ml)	
Urate / Uric Acid	Gel SST	1 bottle (5.0ml)	
β-hCG	Gel SST	1 bottle (5.0ml)	
Acetaminophen (paracetamol)	Gel SST	1 bottle (5.0ml)	
Amikacin	Gel SST	1 bottle (5.0ml)	
Carbamazepine	Gel SST	1 bottle (5.0ml)	
Digoxin	Gel SST	1 bottle (5.0ml)	
Gentamicin	Gel SST	1 bottle (5.0ml)	
Lithium	Gel SST	1 bottle (5.0ml)	
Phenytoin	Gel SST	1 bottle (5.0ml)	
Salicylate	Gel SST	1 bottle (5.0ml)	
Theophylline	Gel SST	1 bottle (5.0ml)	Trough level
Valproate	Gel SST	1 bottle (5.0ml)	
Vancomycin	Gel SST	1 bottle (5.0ml)	
Bile Acids	Gel SST	1 bottle (5.0ml)	
Ferritin	Gel SST	1 bottle (5.0ml)	
Albumin (Urine)	Urine		
Calcium (urine)	Urine		
Calcium excretion	Urine	24 hr Urine	
Creatinine (urine)	Urine		
Creatinine Clearance	Gel SST	1 bottle (5.0ml)	
	Urine	24 hr Urine	
Potassium (Urine)	Urine		
Potassium excretion	Urine	24 hr Urine	
Protein, Total (Urine)	Urine		
Sodium (Urine)	Urine		
Sodium excretion	Urine	24 hr Urine	
Urine Albumin/Creatinine Ratio	Urine		
Urine Calcium/Creatinine Ratio	Urine		
Urine Protein/Creatinine Ratio	Urine		
Urea excretion	Urine	24 hr Urine	
CSF Glucose	Fluoride oxalate	Sample	
Lactate (CSF)	Universal	Sample	
Protein, Total (CSF)	Universal	Sample	
Bllood O2, CO2, pH, HCO3, elec, creatinine	Heparin whole blood	Blood gas syringe	
Osmolality	Gel SST	1 bottle (5.0ml)	
Osmolality	Urine	Random	

Haematology:

Name	Sample type	Sample volume	Special requirement
Full Blood Count (FBC) analysis: Total red cell count Haemoglobin Mean cell volume Mean cell haemoglobin Mean cell haemoglobin concentration Haematocrit Red cell distribution width Total white cell count Absolute neutrophil count Absolute lymphocyte count Absolute monocyte count Absolute eosinophil count Absolute basophil count Platelet count Mean platelet volume Nucleated red cell count Reticulocytes Red cell morphology White cell morphology Platelet morphology White cell differential	EDTA	1 bottle (4.0ml)	
Detection of malaria antigens Speciation of malaria & non-malaria parasites		1 bottle (4.0ml)	
Sickle cell solubility test		1 bottle (4.0ml)	
Erythrocyte Sedimentation Rate (ESR)		1 bottle (4.0ml)	
Clotting screen: Prothrombin Time (PT) Activated Partial Thromboplastin Time (APTT)	Sodium citrate	1 bottle (2.7ml)	
Clauss fibrinogen	Sodium citrate	1 bottle (2.7ml)	
D-dimer	Sodium citrate	1 bottle (2.7ml)	
Anti-Xa (Unfractionated heparin)	Sodium citrate		

Blood Transfusion:

ABO/ RhD typing: Children >4months - adult	Pink EDTA	1 bottle (6.0ml)	
Children <4months	EDTA	Paed	
DAT Direct antiglobulin Test	Pink EDTA		
Kleihauer	Pink EDTA		
RHK phenotyping	Pink EDTA		
Antibody panels (enzyme & IAT)	Pink EDTA		

The full repertoire of tests provided by the Synnovis organisation including Infection Sciences and Tissue Sciences departments can be reviewed via the Synnovis website [Test index | Synnovis]