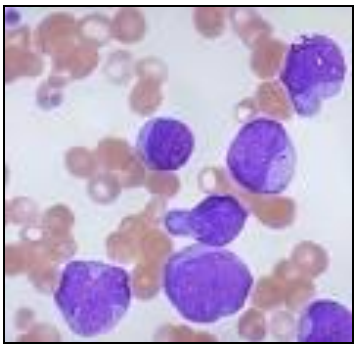
HAEMATOLOGY
&
BLOOD TRANSFUSION SERVICE
(Including Phlebotomy)

USER GUIDE



CONTENTS

1 INTRODUCTION

This user guide is designed to help you get the most from the Haematology, Blood Transfusion and Phlebotomy Services.

- **Department Overview & Current Context**

The Haematology and Blood Transfusion Laboratory Service, including Phlebotomy, which operates within East Kent Hospitals University NHS Foundation Trust (EKHUFT) covers 5 hospital sites including:

1. William Harvey Hospital, Ashford – Hub Blood Sciences laboratory and Phlebotomy Service
2. Kent & Canterbury Hospital, Canterbury – Cross Trained spoke laboratory with Phlebotomy Services. Serving an array of specialist hospital services including Renal/Vascular and Haemato-Oncology and supporting an urgent treatment centre (UTC). The diagnostics base for the Flow Cytometry Service and large scale research activities within EKHUFT.
3. Queen Elizabeth the Queen Mother Hospital, Margate – Cross Trained spoke laboratory and Phlebotomy Service – Base for East Kent's Haemoglobinopathy Service
4. Royal Victoria Hospital Folkestone – Phlebotomy Service Only
5. Buckland Hospital, Dover – Phlebotomy Service Only

There is a 24-7 / 365 diagnostic laboratory service offered on sites 1-3 with full Blood Transfusion and Haematology cover during these times supported by Biomedical and Assistant Health Care Scientists.

The Trusts Blood Transfusion Service maintains MHRA compliance and actively supports the Kent Surrey and Sussex Air Ambulance Service.

All of our hospital Haematology & Transfusion laboratories and Phlebotomy services are UKAS ISO 15189; 2012 compliant for the tests which are listed in our scope of practice on the UKAS.com website or section 25 of this document. For further detailed information on which tests are accredited please visit https://www.ukas.com/search-accredited-organisations and search East Kent Hospitals for a detailed record of our test scope against record (9400).

Haematology & Transfusion Laboratory Locations

WHH laboratory is located on the ground floor in the green zone at the rear of the hospital.

K&CH laboratory is located in the corridor between Outpatients and Clarke Ward.

QEQMH laboratory is located in the St Peter's Road wing on the ground floor.

See section 22 for Phlebotomy Services

2 LABORATORY OPENING HOURS

The laboratories are operational 24-7 / 365 days a year.

Weekdays

A routine fully staffed Haematology and Blood Transfusion Service operates between 08:00 and 20:00 Monday to Friday.

An emergency laboratory service with out of hours cover being between 20:00 and 08:00 covered by a single out of hours Biomedical Scientist operates outside of routine hours.

Out of Routine working hours the duty biomedical scientist may be contacted as shown below:

Laboratory	Contact Details	
WHH	Bleep 8646	Or contact via switchboard
K&CH	Bleep 7022	Or contact via switchboard
QEQMH	Bleep 6131	Or contact via switchboard

Weekends

At weekends an out of routine hour's laboratory service operates in Haematology and Blood Transfusion on all 3 sites and operated by a single biomedical scientist.

Please do not telephone the normal routine contact numbers during out-of-hours periods as they may not be heard or the BMS may be attending to duties within another laboratory area.

The duty Biomedical Scientist will undertake any emergency investigations required for the immediate diagnosis and treatment of the patient and can be contacted personally by the requesting doctor / nurse practitioner on each occasion if applicable. Samples for testing should be sent immediately to the laboratory after collection either by porter or air-tube system where available.
Patients being admitted for routine elective treatment are not considered urgent and should not be bled for testing during out-of-hours periods.

Bank Holidays

During bank holidays the laboratory service operates in Haematology and Blood Transfusion on all 3 sites and operated by a single biomedical scientist.

3 CONTACT NUMBERS AND KEY PERSONNEL

The main hospital switchboard number is: 01227 766877

If calling from outside the hospital, dial the main switchboard number and then once prompted add the appropriate extension number as below.

If calling from within the hospital then dial the extension number directly.

The following prefixes apply: WHH (723) K&CH (722) QEQMH (725)

Contact	Position	Extension Number
Haematology Laboratory		
WHH	Main Laboratory	**723 8065**
K&CH	Main Laboratory	**722 3173**
QEQMH	Main Laboratory	**725 3200**
Blood Transfusion Laboratory		
WHH	Main Laboratory	**723 6017**
K&CH	Main Laboratory	**722 2719**
QEQMH	Main Laboratory	**725 4429**
Clinical Haematology Team		
Dr Gillian Evans	Head of Laboratory Service	**722 5137**
	Haematology Consultant	**Please contact switchboard**
	Clinical haematology reception	**01227 864073**
Laboratory Service Management		
	General Manager for Pathology	**723 8400**
	Deputy General Manager for Pathology	**723 8066**
	Head Biomedical Scientist Haematology & Transfusion Pathology & Care Group H&S Lead	**723 1865**
	Haematology & Blood Transfusion Quality Lead	**723 8618**
	Chief Biomedical Scientist Transfusion (**K&CH & QEQMH**)	**722 5064**
	Chief Biomedical Scientist Transfusion (**WHH**)	**723 6607**
	Chief Biomedical Scientist Haematology (**K&CH & QEQMH**)	**722 4051**

	Chief Biomedical Scientist (**WHH**)	
	Blood Science Service Operations Support Officer	**725 3620 (QEQMH)** **722 5064 (K&CH)**
Phlebotomy Service Management		
	Blood Transfusion Practitioner and Phlebotomy Services Manager **WHH**	**723 6713**
	Blood Transfusion Practitioner and Phlebotomy site lead **K&CH**	**722 8759**
	Lead Blood Transfusion Practitioner and Phlebotomy site lead **QEQM**	**725 5118**

Blood Bank Emergency Direct Dial:

WHH (01233) 616017, **K&CH** (01227) 783124, **QEQMH** (01843) 227297

For advice on Haemostasis & Thrombosis: Please use CareFlow or contact one of the haematology registrars or the on-call haemostasis consultant

4 CLINICAL INFORMATION

It is particularly helpful to us to receive as much clinical information as possible within the laboratory request as this ensures that the appropriate diagnostic tests are performed on your behalf.

5 CLINICAL ADVICE AND INTERPRETATION

Clinical advice and interpretation is available on request from the key medical personnel listed above. Careflow can be used in order to contact the haematology registrar & consultant team. Clinical and interpretative comments are also added to the results if indicated.
Out of hours clinical advice is available by contacting the on call Haematologist via the Switchboard

6 SPECIMEN LABELLING AND TEST REQUESTS

Please help us to help you by completing test requests (electronic or conventional forms) legibly with all the necessary information. **It is essential** that the patient details are clear and accurate and also that we have a clear indication of the destination for the report and the requestor.

Specimens and test requests must be completed in accordance with the Pathology

Directorate's Specimen Acceptance Policy DIR-LP-Q113. Blood transfusion samples must be hand written on the specimen

Requests for investigations must include the following information:

- Patient demographic details including NHS number where available
- Whether the patient is NHS or private
- Date of collection of specimen
- Requesting doctor with bleep number (junior doctors)
- Return destination for the report
- Relevant clinical details including current treatment. Please provide as much information as possible, including anticoagulant drugs
- Tests required

Correct samples for Blood Transfusion

NOTE All samples for analysis by the blood bank **MUST** be fully labelled with patients surname and forename(s), date of birth (not age), patients NHS number (hospital number if unavailable) (or full address for ante-natal samples at booking only/newborn cord blood samples) and the ward on which the patient currently resides. This information must be hand written (by the person drawing the blood **only**) and the label signed and dated. All patient details must be correct and thoroughly checked.

Any samples not meeting current guidelines as shown in the Pathology specimen and request form acceptance policy will not be processed.

This may result in delay of provision of blood for your patient. Please see below for details of specimen and request form requirements.

7 SAMPLE REQUIREMENTS

All samples should be transported promptly to the laboratory, at room temperature (except where specified see below) and away from direct sunlight. Appropriate boxes should be used for this purpose and the samples should be placed inside sample bags.

Haematology	Container	Minimum Volume	Comments
FBC	Purple top (EDTA)	1mL Paediatric tubes available minimum volume 0.5mL	FBC samples must be processed within **24 hours** from collection. Samples should be kept between 4 and 25 C and away from direct sunlight .
Flow cytometry for lymphocyte subsets	Purple top (EDTA)	1mL	Flow cytometry samples for lymphocyte subsets must be processed within 36 hours of venesection and stored at room temperature. Samples for lymphocyte subsets

			are analysed at K&CH Mon-Fri 9-4:30pm (excluding bank holidays). Samples must arrive at K&CH by 4pm for analysis the same day. Paediatric lymphocyte subset samples are analysed by Great Ormond Street hospital and must be received Mon-Thur for referral
Reticulocytes	Purple top EDTA	1mL	
Glandular fever	Purple EDTA or Red top	1mL	
Sickle cell screening & haemoglobinopathy	Purple top EDTA	1mL	
G6PD Screen	Purple top EDTA	4mL	G6PD analysis should not be requested post Haemolytic episode If patient transfused red cells in last 3 months do not perform test
ESR	Purple top EDTA (4mL tube)	2mL	Samples must be tested within 24hrs
B12 and Folate	Red top /SST	4mL	
Ferritin	Red top/SST	4mL	
Malaria / other parasites	Purple top EDTA	4mL	
Blood Film	Purple top EDTA	4mL	Laboratory should be notified of any **Urgent film** requests
Bone marrow analysis	Slides		At request of clinician
Blood Transfusion			
Group and Save	Pink top	5mL	
Crossmatch	Pink top	5mL	
Direct antiglobulin test (DAT)	Pink top or purple top	0.5mL	
Foetal-Maternal Haemorrhage (FMH)	Purple top	4.0mL	
Fetal RhD Screening	Pink top	6.0mL	Must be stored at room temperature
Neonatal group & DAT	Paediatric EDTA	1.0mL	<4 months of age
Paediatric group & save	Pink top	2-3mL	>4 months of age
Routine Haemostasis			
Coagulation screen D-Dimer/INR	Blue top	Must be filled to line (*See below figure 1*)	All samples for coagulation must be processed within **6 hours** of collection

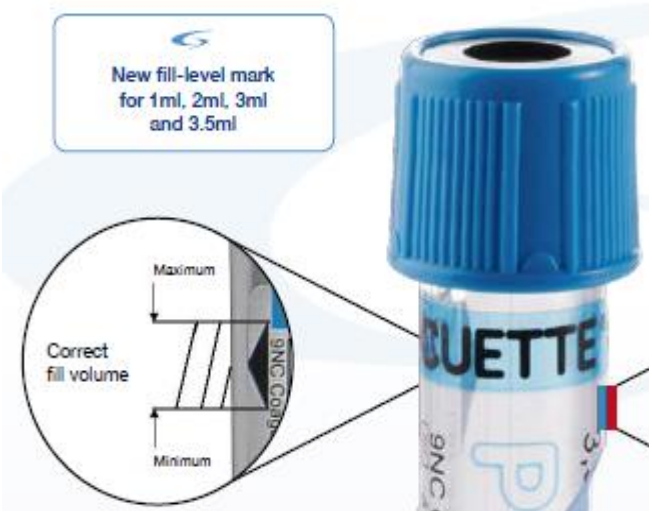
For other specialist tests please discuss with the appropriate laboratory.

Results may be affected by factors such as **lipaemia** or **haemolysis**. The laboratory will advise you regarding this.

Additional investigations may be requested from primary care users by telephoning the

laboratory. Additional investigations may be requested via Sunrise from secondary care users as per the pathology sample and request form acceptance policy which can be found in policy centre. Tests may be added to FBC samples within 24 hours of receipt of the sample. All coagulation tests must be performed within 6 hours of taking the sample. The laboratory will advise you on the suitability of the sample for performing additional tests.

Figure 1: Fill Level for Coagulation Tubes



NB: It has been observed that when collecting coagulation tubes as the first sample using the butterfly needle collection system the tubes may not always fill to the minimum line causing them to be rejected by the Laboratory. To avoid this please select a butterfly needle with the shortest possible tubing and allow the tubing to fill with blood and displace the air before inserting and filling the coagulation tube. If you experience any problems collecting or filling coagulation tubes then please contact the Haemostasis and Thrombosis Laboratory to discuss.

8 TURNAROUND TIMES (TAT)

Where final results are delayed due to the sample requiring further evaluation e.g. blood film examination, the basic FBC parameters will be made available on Apex.

TEST	TAT	COMMENTS
FBC – (ED/SEAU/AMU)	within 1 hour of receipt	
FBC urgent (CDU/ITU)	2 hours	Grossly abnormal results on GP or outpatient samples will be phoned on the day of receipt. Out of hours to NHS 111 Service if GP closed.
FBC non urgent	24 hours 4 hours for inpatient wards	
Routine Coagulation (Urgent)	Within 1 hour of receipt	Routine Coagulation Screen / INR
Haematinics (B12, Folate and Ferritin)	1 week	

Blood Films (Non-referred)	72 Hours	72 Hours from blood film production in laboratory (not receipt).
Blood Films (Referred)	1 Week	Where films are referred to consultant haematologists for further comment and authorisation.
Plasma viscosity	1 week	Requires approval of Haematology Clinician
ESR – Routine	24 hours	
ESR – Urgent	Within 1 hour of receipt	For example – Query Giant Cell Arteritis (GCA), Temporal Arteritis (TA) from Ophthalmology/ED etc.
Sickle Cell Solubility **Screen (Routine)**	72 hours	
Flow Cytometry	72 hours	
Haemoglobin Electrophoresis (HBEL)	2 weeks	
Antenatal Haemoglobinopathy Screens	3 working days	
Glandular Fever Screen	48 hours	
G6PD Screen	10 days	All samples are sent to Synnovis; Kings College Hospital
HLA B27	7 days	Samples now sent to NHSBT
Malaria and other blood parasites	24 hours	
Blood Group & Antibody Screen	24 hours	
Direct Antiglobulin Test (DAT)	4 hours	
Fetal RhD screening	10 working days	All samples sent to NHSBT, Filton

Once results are finalised they will be available on Apex and available for viewing by the requesting consultant in charge of the patient or the requesting doctor in primary care.

Results cannot be given directly to patients. All test results must be obtained from the clinical requestor.

If you require more urgent results please discuss your requirements with the biomedical scientist or consultant haematologist.

9 SPECIALIST HAEMATOLOGY INVESTIGATIONS

The Haematology laboratory offers a range of non-routine tests available by prior consultation with a clinical haematologist including:

Cell marker investigations

Leukaemia/Lymphoma markers (Immunophenotyping Studies)

JAK 2 Mutation

Cytogenetics Analysis / Karyotyping/Chimerism

Investigations of Anaemia

Haemoglobinopathy studies e.g. Gene Sequencing

Red cell enzyme studies

Pyruvate Kinase analysis

Testing for Hereditary Spherocytosis

PNH screen (Paroxysmal Nocturnal Haemoglobinuria)

Further more detailed information can be found in section 17.

10 BLOOD TRANSFUSION SERVICE SPECIFIC

It is extremely important that the patient is correctly identified at the time of blood sampling. This is the responsibility of the person collecting the blood. Samples should be correctly labelled (see section 6 & 7) at the bedside. The labelling of tubes MUST NOT be delegated to a third party.

Please remember BLOOD CAN KILL

Products issued by the Blood Transfusion laboratory comprise:

Cross-matched blood

Electronically issued blood

Emergency group O RhD negative or O RhD positive blood

Uncross-matched group compatible emergency blood

Fresh frozen plasma

Platelet concentrate

Human albumin solution (4.5% and 20%)

Cryoprecipitate

Anti-D immunoglobulin

Beriplex (prothrombin complex concentrate, for reversal of oral anticoagulants)

Concentrated fibrinogen

Other coagulation factors

Major haemorrhage units as part of the Major haemorrhage procedure

For full details of the Trust Blood Transfusion Policy please see the Trust Website or ask for a copy to be forwarded to you from any of our Blood Transfusion Laboratories.

Special requirements If your patient has special requirements please discuss these with the blood transfusion laboratory when requesting blood. If you are in any doubt regarding a patients requirements please refer to the appropriate guidelines or discuss with a Consultant Haematologist.

Conditions which require special requirements include:

Cytomegalovirus (CMV) negative blood SaBTO guidelines:

- Neonates (children <1 month of full term delivery date)
- Intra-Uterine Transfusion (IUT)
- Planned transfusions during pregnancy
- Granulocyte transfusions

Irradiation

Intrauterine transfusion top up transfusions where there has been a previous IUT transfusion, Hodgkins disease, Post treatment with purine analogues eg fludarabine post bone marrow transplantation prior to bone marrow / stem cell harvesting, Inherited immunodeficiency states and patients treated with Anti-Thymocyte Globulin (ATG)

Patients requiring irradiated blood should carry a card stating their requirements.

ALWAYS TELEPHONE THE LABORATORY FOR URGENT BLOOD

The provision of compatible crossmatched blood may be delayed where **atypical auto** or **allo antibodies** are detected in the patient's blood.

You will be informed if this occurs and additional samples may be requested for further analysis.

For routine blood crossmatching and the provision of non-urgent blood products please give the laboratory **at least 24 hours' notice**

Albumin requests: these will be processed within a minimum of one hour from receipt of request form

Turnaround Times

Red Cells

Urgency	Blood Required	TAT
'life or limb'	MHP	Immediately
Life threatening bleed	Group specific un-crossmatched	10-15 minutes
Urgent non-life threatening	Crossmatched	One hour*
Day attender (CBC, SDEC etc)	Crossmatched (with or without special requirements)	Up to two hours**
Routine In-patient top up	Crossmatched or electronically issued	Up to 4 hours**
In-patient complex crossmatch	Referred to RCI, with or without XM done by lab	Up to 24 hours depending on urgency and clinical need
Day attender complex crossmatch	Referred to RCI, with or without XM done by lab	Samples to be sent to lab 48 hours prior to transfusion where possible
Washed red cells	Requires NHSBT consultant approval	Can take up 12 hours to process

*Provided no anomalous grouping results or antibodies detected
**Provided no unexpected results and suitable blood available in the lab
Where possible clinical areas should order crossmatches the day before a patient is attending for transfusion (SDEC, Celia Blakey, Viking Day Unit, Cathedral Day Unit)
Frequently transfused patients with complex special requirements must be discussed with the laboratory prior to requesting and sending a crossmatch.

Platelets

Urgency	TAT
Major haemorrhage	Immediately*
Bleeding, non-life threatening	3-4 hours
For theatre, on anti-platelet therapy	3-4 hours
Routine pre-op with low platelets	24-48 hours notice
Sepsis patients with low platelets	3-4 hours
Patients requiring washed platelets	Requires NHSBT approval and can take up to 24 hours to process

*Where suitable platelets are available on-site

When requesting group and save or cross match of blood for patients going to theatre please refer to the maximum blood ordering schedule (MSBOS).

11 HAEMOSTASIS AND THROMBOSIS LABORATORY TESTING

Please refer to the Haemostasis and Thrombosis Laboratory Service User Guide

For further information contact:

Mr David Gurney (Head Biomedical Scientist)
Miss Sarah Clarke (Chief Biomedical Scientist)
Dr Gillian Evans (Director of the Haemophilia Centre Service)
Dr Kim Elliott (Consultant for Haemostasis and Thrombosis and Laboratory Clinical Lead)

12 URGENT REQUESTS

- Please request tests to be performed urgently only when it is clinically essential.
- All of our work is processed rapidly and the results are available in a timely manner. The agreed turnaround times for each test are published within this user guide.
- If you wish for a sample to be analysed urgently, please make sure that the request clearly states this and always contact the laboratory to discuss.
- These samples will be handled separately and the results telephoned to the requesting doctor/nurse as soon as possible.
- If the phlebotomist bleeds the patient, please ensure that the phlebotomist understands that the sample is urgent and needs to be transported immediately to the Haematology or Transfusion laboratory.

13 TELEPHONED RESULTS

- Please avoid asking us to telephone results if possible as this interferes with the work of the laboratory
- Significantly abnormal results will be telephoned to the ward and/or requesting clinician.
- The Haematology Laboratory services bases on each acute site have an agreed list of critical/alert results that will always be telephoned to the ward and/or requesting clinician (see table below)

14 TELEPHONING OF URGENT RESULTS TO A&E (PTL)

Pathology utilises the PTL to communicate the majority of critical results to the accident and emergency departments at William Harvey Hospital, Ashford and Queen Elizabeth the Queen Mother Hospital, Margate.

These results will appear on the PTL/whiteboards in the A&E departments where clinical staff are aware of the need to look for them. **All other critical results, and critical results to all other locations, remain unaffected by this change and continue to be telephoned.**

Should there be a failure of the PTL system, A&E staff will notify pathology staff and laboratory staff should revert to the telephone system until the situation resolves.

Haematology telephone alert ranges

Telephone Urgently	**Telephone Urgently to Requestor and also Consultant Haematologist (or on call Haem clinician)**
Hb <80 g/L (if unexpected)	
Hb >190 g/L except neonates if unexpected	
WBC >30.0 x 10^9/L if unexpected	any new wbc > 100 unless known CLL / chronic lymphoproliferative disorder/ CML where the count

	has not doubled
Neutrophils <1.0 x 10^9/L if unexpected	
Platelets <50 x 10^9/L if unexpected	<30 if unexpected
Malarial Parasite investigations- Positive Malarial Screens- phone to the clinician looking after the patient.	
Positive HbS screens	
Any results that suggest a probable acute leukaemia/ New AIHA, ITP, TTP	Any results that suggest a probable acute leukaemia/ New AIHA, ITP, TTP, HUS, HELLP

Coagulation Telephone Alert Ranges

Telephone the Requestor Urgently	Inform the Haemophilia Centre Consultant / Registrar
Any INR **≥ 8.0**	
Any patient receiving unfractionated heparin and APTT ratio is **<1.5 or >2.5**	
Any first time unexpected, grossly prolonged PT or APTT result and the patient is **not** on anticoagulants. **PT >25 seconds or APTT >50 seconds.**	
Any anti-Xa level **>1.0 U/mL or <0.1 U/mL**	Any anti-Xa level **>1.0 U/mL or <0.1 U/mL**
Any fibrinogen **<1.0 g/L**	
Any request form stating DIC or ?DIC on the clinical details if the fibrinogen is **<1.5 g/L**, or the **PT or APTT are >5 seconds** above the normal range, or if the patient is bleeding.	
Any patient on direct thrombin inhibitors (such as Dabigatran, Bivalirudin and Argatroban) or direct factor Xa inhibitors (such as Rivaroxaban and Apixaban) if the request form states “bleeding”.	
Any patient with abnormal coagulation results and the request form states “bleeding”.	
Any patient on thrombolytic therapy and the request form states “bleeding”.	Any patient on thrombolytic therapy and the request form states “bleeding”.
	Any newly diagnosed coagulopathies: • Discuss with Haemophilia consultant. • Refer to Haemophilia Consultant Queue if non urgent.
	Any newly diagnosed inhibitors: Inform Haemophilia consultant urgently.

- We will always ask you to confirm any results that we do give you by telephone by reading the results back to us.
- We will always ask for the name of the person taking the results for audit purposes.
- The above protocol will also be applied if you telephone the laboratory for results.

15 HIGH RISK SAMPLES

The Laboratory operates a policy of universal safety precautions for all samples and we recommend that you regard all blood as being potentially infectious. High risk labelling of samples is **not required**.

16 DETERMINATION OF UNCERTAINTY AND FACTORS AFFECTING COAGULATION RESULTS

The calculation of the uncertainty of measurement (UoM) is undertaken by the laboratory service through review and update at regular intervals. Information in relation to the UoM for the laboratory tests carried out within the Haematology and Blood Transfusion laboratories of EKHUFT can be obtained by contacting a member of the laboratory team as listed in section 3 of the User Guide.

16.1 Pre Examination Factors Affecting Haematology & Transfusion Results

All Haematology results will be subject to variability arising from how the sample is collected and stored. Differences in patient preparation, specimen collection technique, time of sampling, transportation, storage time and preparation of the primary sample may all alter the results and the measurable amount of an analyte in a sample. Other factors that may influence coagulation results are generally patient specific and include stress, jaundice, underlying clinical conditions and certain drug therapies.

As users of the Haematology & Transfusion Laboratory Service you play a key role in reducing the effects of pre analytical variables on results by following the information and advice provided in this Users Guide to ensure that you collect a good quality sample at the appropriate time and for the appropriate tests. There are a number of steps that you can take to ensure the quality of the sample that you send to us:

- Always check the individual sample requirements
- Ensure the samples are taken in the correct order of draw – **1.** Blood culture or no additive tubes, **2.** Coagulation tubes, **3.** Serum tubes with/without gel, **4.** Heparin tubes with/without gel, **5.** EDTA tubes, **6.** Glucose tubes and **7.** Other tubes
- Do not take the sample from an arm with a drip.
- Do not tip blood from one bottle to another, as this will result in an incorrect blood to anticoagulant ratio or may contaminate the sample with an inappropriate anticoagulant
- Samples must be filled exactly to the level indicated on the bottle.
- Overfilled and under filled samples are unsuitable for analysis.
- As soon as the sample is in the bottle, mix thoroughly by gentle inversion. Do not shake.
- Ensure the samples are delivered promptly to the laboratory.
- Samples >6 hours old when they arrive in the laboratory are unsuitable for all coagulation testing and will be rejected.

16.2 Examination Factors Affecting Haematology & Transfusion Results

As with all examination procedures there are numerous analytical factors that may introduce variability into the results of our haematology tests. These include uncertainty of the calibrator value and dispensed volumes, reagent and calibrator batch variations, equipment maintenance and age, different operators, and environmental fluctuations. There may also be substances present in the sample that interfere with the test procedure such as certain drugs or bilirubin. The laboratory pays careful attention to these factors and takes a range of steps to minimise their effects on results including:

- Where available all tests are referenced to and calibrated against a known reference material or accepted standard
- Following national guidelines and protocols where available
- Annual commercial service and calibration of all laboratory pipettes and the laboratory balance and regular on-going in-house calibration checks
- A comprehensive internal and external quality control programme with careful monitoring of the accuracy, precision and bias of all assays
- Strict adherence to standard operating procedures and manufacturer's maintenance schedules
- Regular competency assessment of all staff
- Assessing the limitations, interfering substances and cross reactions affecting all assays.

16.3 Post Examination Factors Affecting Haematology & Transfusion Results

A number of factors can affect the interpretation of test results. Some assays produce raw numerical data that is then manipulated to produce a final result, and it is possible for calculations to introduce errors (e.g. rounding up numbers) and lead to variability of results. Disease and physiological factors such as biological variation, stress and pregnancy can all bring uncertainty to the interpretation of results. If the result is distinct from the clinical decision value then these factors are generally of little or no importance but as results approach clinical decision values they may significantly affect interpretation.

Automated analysers function within operating limits of accuracy and precision. This may produce slight variance in results if a sample is analysed more than once. These limits are generally very small and the resulting changes in results are not clinically significant. Common accuracy and precision values for our analysers are shown below.

Accuracy within FBC Parameters

Parameter	Accuracy
WBC	Within ± 3.0% or within ± 0.20 x 10^9/L
RBC	Within ± 2.0% or within ± 0.03 x 10^12/L
PLT	Within ± 5.0% or within ± 10.0 x 10^9/L
Neut%	Coefficient correlation r ≥ 0.90
Lymph%	Coefficient correlation r ≥ 0.90
Mono%	Coefficient correlation r ≥ 0.75
Eos%	Coefficient correlation r ≥ 0.80
Baso%	Coefficient correlation r ≥ 0.50
NRBC%	Coefficient correlation r ≥ 0.80
Neut#	Within ±3.0% Neut%
Lymph#	Within ±3.0% Lymph%
Mono#	Within ±2.0% Mono%
Eos#	Within ±1.0% Eos%
Baso#	Within ±1.0% Baso%
Ret#	Within ±20.0% or ± 15.0 x 10^9/L

Precision within FBC Parameters

Parameter	Precision
WBC	CV 3.0% (when WBC ≥ 4.0 x 10^9/L)
RBC	CV 1.5% (when RBC ≥ 4.0 x 10^12/L)
Hb	CV 1.0%
HCT	CV 1.5%
MCV	CV 1.0%

MCH	CV 1.5%
MCHC	CV 1.5%
PLT	CV 4.0% (when PLT ≥ 100 x 10^9/L)
Neut#	CV 1.4%
Lymph#	CV 2.33%
Mono#	CV 7.82%
Eos#	CV 5.66%
Baso#	CV 16.16%
RET	CV 15% (when RET = 1 – 4%)
NRBC	CV 25% (when WBC ≥4.0 x 10^9/L)

Linearity within FBC Parameters

Parameter	Linearity
WBC	Within ±2.0% or ± 0.2 x 10^9/L (0 – 100 x 10^9/L) Within ±6.0% (100.1 – 310 x 10^9/L) Within ±11.0% (310.1 – 440 x 10^9/L)
RBC	Within ±2.0% or ± 0.03 x 10^12/L (0 – 8.0 x 10^12/L)
Hb	Within ±2.0% or ± 2 g/L (0 – 250 g/L)
HCT	Within ±2.0% (O – 0.60)
PLT	Within ±5.0% or ± 10 x 10^9/L (0 – 2000 x 10^9/L)
RET%	Within ±20% or ± 0.3 RET% (0 – 23%)
NRBC%	Within ±20% NRBC (0 – 464/100 WBCs)

Carryover < 0.5% for all parameters

Coagulation

	Intra assay reproducibility CV %	Inter assay reproducibility CV %
PT (Neoplastine)	0.8 – 1.5	1.3 – 1.7
APTT (Cephascreen)	0.6 – 0.8	0.9 – 1.4
Thrombin Time	1.7 – 2.8	1.6 – 3.3
Reptilase Time	1.0 – 1.1	1.9 -2.2
Fibrinogen	2.3 – 3.4	2.0 – 3.7

	Intra assay reproducibility SD	Inter assay reproducibility SD
PT (Neoplastine)	0.2 – 0.2 s	0.2 – 0.4 s
APTT (Cephascreen)	0.19 – 0.40 s	0.42 – 0.44 s
Thrombin Time	0.53 – 0.55 s	0.29 – 1.09 s
Reptilase Time	0.20 – 0.23 s	0.34 – 1.19 s
Fibrinogen	4 – 7 mg/dl	5 – 6 mg/dl
D-Dimer (Liatest)	0.04 – 0.08 ug/ml	0.05 – 0.14 ug/ml

Glandular Fever Test (Monogen)

Sensitivity of 99% and specificity of 93% relative to EBV specific tests.

G6PD

No information available

Sickle Screening

False positives may occur in patients with erythrocytosis, hyperglobulinaemia, extreme leukocytosis or hyperlipidaemia. False positives or false negatives may occur in patients with severe anaemia.

False negatives may occur in infants under 6 months of age due to elevated levels of Haemoglobin F. Positive results may occur in patients with some rare sickling haemoglobin sub-types such as Hb C Harlem or Hb C Georgetown.

The screening test is a qualitative screening procedure and does not differentiate between sickle cell disease (S/S) and sickle cell trait (A/S).

Blood Transfusion and Manual Methods e.g. blood film reporting.

Automated methods for blood group and antibody screen are used in the majority of blood transfusion tests performed. Manual intervention, where needed, requires subjective decisions to be made by a Biomedical Scientist. This also applies to other manual methods such as blood film reporting. In these cases the quality of results is maintained by competency assessment and participation in external quality assurance schemes. Standard Operating Procedures (SOPs) are followed for all procedures.

17 REPORTS

Results will be available to view on Patient Centre and Dart OCM as soon as they have been authorised and paper copy of reports will be issued to the requestor if required. Not all primary care requestors have elected to receive paper copies of the reports.

Reference ranges are periodically re-evaluated and can be found on the paper (being phased out) and electronic report alongside each result. If a reference range has been recently altered a comment will be placed below the test for a period of **six months** to indicate this.

18 SAMPLES REFERRED TO OTHER TRUSTS/LABORATORIES FOR ANALYSIS:

There are a number of tests that it is not cost effective to perform in the Haematology or Transfusion laboratory and these are referred to specialist laboratories outside of the East Kent Hospitals Trust.

The Haematology and Transfusion Service ensures that each referral laboratory has UKAS ISO15189 accreditation for the tests referred and where available, participates in a recognised external quality control (EQA) scheme, and this status is checked annually.

NOTE REGARDING TURNAROUND TIMES (TAT) FOR REQUESTS SENT AWAY

Requestors should note that TATs stated in the table below are the times taken to turn the assays around by our referral partner laboratories once samples have arrived with them.

Please allow approximately **1 additional working day** for sendaway tests to be managed

within East Kent for packaging and for onward transit to the referral laboratories listed below.

Please also note that some results are sent back by post to East Kent Pathology and as such time for this transit, the uploading of results on to hospital systems, also needs to be taken in to account.

For results sent to Synnovis: For Haematology consultants who have access to the Synnovis results portal online, please check this regularly.

If you have any queries please contact the Haematology or Blood Transfusion laboratories as in section 3 for further advice and support.

The table below lists the referral laboratories that we currently use;

Test	Referral Laboratory	Hospital	Reference Lab Turnaround Time
Immunophenotyping for Malignant Disease	SE-HMDS Synnovis Kings	Kings College hospital Denmark Hill London SE5 9RS	3 Working days from receipt or 24hrs if clinically agreed as URGENT UKAS no. 9092
Specialist Coagulation following abnormal Routine Screening	Haemophilia Laboratory Service	Kent & Canterbury Hospital Ethelbert Road Canterbury Kent CT1 3NG	4 weeks for routine screening URGENT screening managed on case by case basis • Discuss with Haemophilia Laboratory 722 – 5135 UKAS no. 9397
Plasma Viscosity*	HSL The Halo Building (TDL)	The Halo, 1 Mabledon Place, Kings Cross, London WC1H 9AZ	3 Working days from receipt UKAS no. 8812
G6PD Quantitation	Synnovis Kings red cell centre – protein laboratory	Kings College hospital Denmark Hill London SE5 9RS	10 Working days from receipt UKAS no. 9092
Malarial Parasite PCR Confirmation of Species	Malaria Reference Laboratory	London School of Hygiene and Tropical Medicine Keppel Street London WC1E 7HT	Results will be reported within agreed TATs of; - Microscopy 1-2 days - Telephoned results within 2 hrs of receipt - PCR 1-4 days. All results

			telephoned UKAS no. 9148
Red Cell Grouping Anomalies & Antibody Investigation	The National Blood Service (NHSBT) RCI Laboratories	NHSBT Tooting London SW17 0RB	5 Working days from receipt UKAS no. 8740
Cytogenetics for Malignant Disease	SE-HMDS Synnovis Kings	Kings College hospital Denmark Hill London SE5 9RS	AML, ALL & CML (3 working days) MDS & MPD (5 working days) CLL & Lymphoma (3 working days) Myeloma (21 days) UKAS no. 9092
Chimerism Studies	SE-HMDS Synnovis Kings	Kings College hospital Denmark Hill London SE5 9RS	3-5 Working days from receipt UKAS no. 9092
T Cell Subsets (CD4) Immunophenotyping - GUM (*if K&C analyser out of action*)	Synnovis Immunology laboratory at Kings	Kings College hospital Denmark Hill London SE5 9RS	2 Working days from receipt UKAS no. 8641
Paroxysmal Nocturnal Haemoglobinurea (PNH) Investigations	SE-HMDS Synnovis Kings	Kings College hospital Denmark Hill London SE5 9RS	5 Working days from receipt Or 24hrs if clinically agreed as URGENT UKAS no. 9092
Lupus Anti-coagulant and Thrombophilia Screening	Haemophilia Laboratory Service	Kent & Canterbury Hospital Ethelbert Road Canterbury Kent CT1 3NG	14 working days for routine screening URGENT screening managed on case by case basis • Discuss with Haemophilia Laboratory 722 – 5135 UKAS no. 9397
EMA Dye Binding (Osmotic fragility)*	Synnovis Kings red cell centre – protein laboratory	Kings College hospital Denmark Hill London SE5 9RS	5 Working days from receipt UKAS no. 9092
Pyruvate Kinase	Synnovis Kings red cell centre – protein	Kings College hospital Denmark Hill	10 Working days from receipt

	laboratory	London SE5 9RS	UKAS no. 9092
Haemoglobinopathy Screening / Variant Confirmation	Synnovis Kings red cell centre – protein laboratory	Kings College hospital Denmark Hill London SE5 9RS	5 Working days from receipt (Results available online) UKAS no. 9092
HLA B27 Screening*	NHSBT H&I Laboratory	Tooting London SW17 0RB	7 Working days from receipt UKAS no. 9239
Paediatric Lymphocyte Subsets CD4 Immunophenotyping	Department Of Immunology	Camelia Botnar Laboratories Level 4 Great Ormond Street Hospital London WC1N 3JH	3-5 Working days from receipt UKAS no. 8623
JAK 2 Kinase	SE-HMDS Synnovis Kings	Kings College hospital Denmark Hill London SE5 9RS	21 days from receipt UKAS no. 9597
Histo-Incompatibility & Immunology (Granulocyte Immunology)	H&I NHSBT	H&I NHSBT Filton, Bristol, BS34 7QH	21 days from receipt UKAS no.9239
Platelet Immunology	H&I NHSBT	H&I NHSBT Filton, Bristol, BS34 7QH	7 working days from receipt UKAS no.9239
Fetal RhD Screening	IBGRL Filton	NHSBT North Bristol Park Filton,Bristol BS34 7QH	10 working days from receipt UKAS no. 9765

**Osmotic Fragility, Plasma Viscosity & HLA B27 do not appear on the referral laboratories scope of practice*

19 TIME LIMITS FOR REQUESTING ADDITIONAL EXAMINATIONS

Due to the deterioration of labile clotting factors, there is a time limit on requesting additional examinations. Six hours after the original sample was taken, we will be unable to add additional examinations to the sample as the integrity of the sample may have become compromised.

20 REFERENCE RANGES

(EKHUFT) HAEMATOLOGY LABORATORY NORMAL RANGES

The reference ranges which have been applied by the laboratories Haematology service for the reporting of Full Blood Count requests is based upon the parameter reference ranges quoted in the following text:

Lewis, S. M., Bain, B. J., Bates, I., Dacie, J. V., & Dacie, J. V. (2006). *Dacie and Lewis practical haematology*. Philadelphia: Churchill Livingstone/Elsevier

Reference ranges are reviewed at regular intervals according to local laboratory standard operating procedures.

Full Blood Count Parameters

	Adult Male	Adult Female	10 Years	5 Years	1 Year	3 Months	1 Month	1 Week
Hb g/L	130–180	110–150	115-155	110-140	110-140	111-141	115-165	150-210
WBC X10^9/l	4.0-11.0	4.0-11.0	5.0-13.0	5.0-15.0	6.0-16.0	6.0-18.0	5.0-19.0	10.0-26.0
Rbc X10^12/l	4.50-6.00	3.80-4.80	4.0-5.20	4.0-5.20	3.9-5.1	3.1-5.30	3.0-5.40	4.0-6.60
Plt X10^9/l	150-400	150-400	180-400	200-450	200-550	150-550	150-500	150-250
Hct	0.40-0.50	0.36-0.46	0.35 - 0.45	0.34 - 0.40	0.30 - 0.38	0.30 - 0.40	0.33 - 0.53	0.45 - 0.67
MCV fl	80.0-100.0	80.0-100.0	77.0-95.0	75.0-87.0	72.0 - 84.0	68.0-84.0	92.0 - 116.0	92.0 - 118.0
MCH pg	27.0-32.0	27.0-32.0	25.0-33.0	24.0–30.0	25.0-29.0	24.0-30.0	29.0-36.0	31.0-37.0
MCHC g/L	320-360	320-360	320-360	320-360	320-360	320-360	320-360	320-360
Neut x10^9/l	2.0-7.5	2.0-7.5	2.0-8.0	1.5 – 8.0	1.0 – 7.0	1.0 – 6.0	3.0-9.0	3.0- 5.0
Lymph x10^9/l	1.5- 4.0	1.5-4.0	1.0 – 5.0	6.0 – 9.0	3.5 – 11.0	4.0 – 12.0	4.0-16.0	2.0 – 8.0
Mono x10^9/l	0.2 –1.0	0.2 –1.0	0.2 – 1.0	0.2-1.0	0.2-1.0	0.2 - 1.2	0.5 – 1.0	0.5 – 1.0
Eos x10^9/l	0.02-0.5	0.02-0.5	0.1-1.0	0.1 – 1.0	0.2 - 1.0	0.2-1.0	0.2-1.0	0.1-2.0
Baso x10^9/l	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-.1	0.0-0.1
Retics x10^9/l	50-100	50-100	50-100	50-100	50-100	50-100	20-50	50-350

Erythrocyte Sedimentation Rate Normal Ranges

AGE	MALE	FEMALE
17-50 years	1-10	1-12
51-60 years	1-12	1-19
61-70 years	1-14	1-20
>70 years	1-30	1-35

*Mm represents millimetres travelled per hour

Routine Coagulation Test Normal Ranges

Test Name	Normal Range
PT	12-16s
APTT	22-35s
FIBRINOGEN	1.9-4.3g/L
REPTILASE TIME	14-19s
THROMBIN TIME (TT)	13-20s
D-DIMER	0.05-0.5ug/ml

*s represents Seconds

Flow Cytometry (Adult Absolute Values Reference Range

CD3 = 600-3100 cells/µl
CD4 = 360-1790 cells/µl
CD8 = 140-1600 cells/µl

21 SERVICE COMPLIMENTS AND COMPLAINTS

Should your experience of our services not reach the very high expectations we set out to achieve then we would appreciate you contacting one teams to discuss your complaint/concern:

For Informal Complaints

Please contact:

Pathology Operations Manager (Christianna Christodolou-Smith) or Ext 723-6133

Head Biomedical Scientist (Steven Rew) steven.rew@nhs.net or Ext 723 1865

Phlebotomy Service Delivery Manager (Liz Brown) lizbrown4@nhs.net or Ext 723 6718

For Formal Complaints

Please use the following contact:

Patient Experience Team (PET)

Email: ekh-tr.patientexperienceteam@nhs.net#

Telephone Number: 01233 633 331

Extension: 722-3145

22 TRANSPORT OF SPECIMENS TO THE LABORATORY

GEOGRAPHICAL CATCHMENT

East Kent University Hospitals NHS Foundation Trusts Haematology & Blood Transfusion Laboratories and Support services are spread across a wide geographical area supporting over 110 primary care sites from Margate to the east, Faversham to the north, Tenterden to the west and Romney Marsh to the south.
Our services are reliant upon a specific and robust transport infrastructure in order to effectively support an ever growing population of 759,000 with East Kent.
These support services are located within equal distance of each other geographically but are constrained by the road network in places. Our services operate from:

1. The William Harvey Hospital, Ashford
2. The Kent & Canterbury Hospital, Canterbury
3. The Queen Elizabeth the Queen Mother Hospital, Margate
4. Royal Victoria Hospital, Folkestone (Phlebotomy Only)
5. Buckland Hospital, Dover (Phlebotomy Only)

The figure below demonstrates the wide geographical spread of East Kent's Pathology services as things stand.

FIGURE 1 – SPREAD OF MAIN NHS TRUST SITES

The Pathology department holds an SLA with EKHUFT transport services in order to cover all of the primary care sites in our catchment on a daily basis and provide assurance that samples will be delivered within any set turnaround time e.g. coagulation from source to laboratory result within 6 Hours. The pattern of delivery from GP surgery to laboratory will be

dependent upon locality and based upon distance to the local hospital Pathology service laboratories in order to ensure optimum turnaround times and efficiency.

Internal Laboratory to Laboratory Sample Logistics

Some Pathology specimens are transferred to other sites within EKHUFT in order to be processed or to be collated centrally and sent off site to external pathology providers for analysis.

The transport between sites is captured below:

Sample Logistics by Pathology Discipline

Haematology

The Haematology laboratory services send a variety of samples between EKHUFT sites and can be best described by breaking down each site as below:

All Sites
Specialist Coagulation is handled and separated in the main Haematology laboratories on the WHH and QEQMH sites before being frozen and transported daily (internal transport) to the Kent, Surrey and Sussex Haemophilia and Thrombosis centre for analysis which is based opposite Pathology on the Kent & Canterbury site. Occasionally urgent specimens may be couriered across at a cost. Due to the proximity of the K&CH Haematology laboratory to the Haemophilia Centre coagulation specimens received do not require inter-site transport. Inter-site transport is also used throughout the month for inter-site IQC studies for Blood Coagulation and Full Blood Counts.

Blood films may also be sent to any site out of hours for review by local Haematology clinicians in the case of a new haematological malignancy e.g. AML/ALL

In addition to the above the sites send the following samples between sites on Trust transport:

WHH

The WHH Haematology laboratory sends samples to QEQMH for all Haemoglobin Electrophoresis studies on a daily basis.
The WHH Haematology laboratory sends blood films to K&CH for clinical review during times when consultant haematologist cover is not available at the WHH site.
CD4 samples are transferred to K&CH on a daily basis through WHH specimen reception and via Transport. These samples are ‘Urgent’ and are processed at the K&CH site by Flow Cytometry.
Rarely Plasma Viscosity samples sent to K&CH for transport to The Doctors Laboratory (TDL)

K&CH

The K&CH Haematology laboratory sends samples to QEQMH for all Haemoglobin Electrophoresis studies on a daily basis.

QEQMH

The QEQMH Haematology laboratory sends blood films to K&CH for clinical review during times when consultant haematologist cover is not available at the QEQMH site.
Rarely Plasma Viscosity samples sent to K&CH for transport to The Doctors Laboratory (TDL)

Blood Transfusion

The Trusts Blood transfusion laboratory service is reliant upon the transport infrastructure to deliver the following samples and blood products between sites on occasions:

- Routine antenatal blood group and antibody screening samples to WHH from K&CH and QEQMH on a daily basis
- Blood & Blood Products as and when required during routine working hours.

Blood and Blood products includes (not exhaustively):

a. Red Blood Cells (Packed)
b. Fresh Frozen Plasma (FFP) / OCTAPLAS®
c. Platelets
d. Cryoprecipitate
e. Factor Concentrates
f. Anti-D Immunoglobulin

Ward to Laboratory Internal Sample Logistics

Specimens for Haematology and or Blood Transfusion testing can be transported to the laboratory using one of the following methods:

1. In person from ward to laboratory reception

2. Through use of the Trusts pneumatic tube system within a secure air-pod - where this option exists

3. Through the hospitals 2gether Solutions portering service

23 PHLEBOTOMY SERVICE

The Trust phlebotomy services is delivered by Pathology and managed by the Phlebotomy Service Manager who is based within Pathology and can be contacted as per section 3 – contact numbers and key personnel.

The phlebotomy service operates an appointment only service available at the William Harvey, Kent and Canterbury, Queen Elizabeth Queen Mother, Royal Victoria and Buckland hospital sites.

Blood test appointments - To book an appointment please click on the following link to access the booking portal https://itx.ekhuft.nhs.uk/patheks

If you are unable to book via this portal please call 01227 206739 between the hours of 8:30 - 4:30 Monday - Friday. Please note this number is only to book blood test appointments if you are unable to use the above link.

Patients bled within the outpatient phlebotomy areas must be aged 5 or over. Patients under 5 are bled by paediatrics within the paediatric blood clinics e.g. Padua/Rainbow/Dolphin/Carousel.

The Kent & Canterbury and Queen Elizabeth Queen Mother hospital sites have their outpatient phlebotomy rooms adjacent to the site Pathology laboratory. All other outpatient phlebotomy is situated within the hospitals main outpatient areas.

24 MANAGEMENT OF DATA AND INFORMATION & PATIENT CONSENT

The proper management of data and information in the laboratory is essential for the provision of the service.

The department is committed to meeting its information security obligations to meet the needs of users, clients, patients and staff with respect to confidentiality, integrity and availability, which are defined as follows:

Confidentiality: protecting information from unauthorised disclosure

Integrity: safeguarding the accuracy and completeness of information and software

Availability: ensuring information and vital services are available to users when required

DIR-MP-Q107 The Management of Data and Information describes the department's adherence to this standard.

Consent, for the purposes of confidentiality, means that the service user understands and does not object to the following:

• information being disclosed or shared;

• the reason for the disclosure;

• the people or organisations the information will be shared with

• how the information will be used.

For consent to be valid, it must be voluntary and informed, and the person giving consent must have the capacity to make the decision.

When a patient presents to a GP surgery, theatre or clinic for example phlebotomy suite, outpatients, antenatal clinic, and participates in a sample collecting procedure, it is assumed that the patient has already given consent upon receipt of the request in the associated laboratory.

25 UKAS ISO15189 ACCREDITED TESTS

All of our hospital Haematology & Transfusion laboratories and Phlebotomy services are UKAS ISO 15189 compliant for the laboratory tests which are listed in the table below. For further detailed information on which tests are accredited please visit https://www.ukas.com/search-accredited-organisations and search East Kent Hospitals for a detailed record of our test scope against record (9400).

List of Tests for which our services hold UKAS ISO15189 Accreditation
Haematology Laboratory
Full Blood Count (FBC) *Including:-* Haemoglobin White Blood Count Platelet Count Red Blood Count Haematocrit MCV MCH MCHC RDW Neutrophil count Lymphocyte count Monocyte count Eosinophil count Basophil count Reticulocyte Count NRBC Count
Blood Film for detection of abnormalities
Erythrocyte sedimentation rate (ESR)
Detection of infectious mononucleosis heterophile antibodies
Blood Parasitology Malaria Parasite speciation (P falciparum, P. vivax, P ovale, P malariae)
Haemoglobinopathy: Quantitation of HbA2 Quantitation of HbF Quantitation of HbS Identification/Quantitation of other Variant Hb
Sickle cell screen
Coagulation Clotting Screen Prothrombin time/INR APPT/APPTR Fibrinogen (Clauss) Thrombin Time Reptilase PT-50:50 Mixing Studies APTT 50:50 Mixing Studies D Dimer
Flow Cytometry for Immune Monitoring Lymphocyte Subsets CD-4 CD-8 CD-3
Blood Transfusion Laboratory
Blood Grouping O RhD positive O RhD negative A RhD positive

A RhD negative B RhD positive B RhD negative AB RhD positive AB RhD negative
Antigen phenotyping C, c, E, e, K, Fya, Fyb, Jka, Jkb, M, N, S, s, Lea, Leb, P1, Kpa, Lua and Cw
Antibody Screen Rh –, C,D,E,c,e, Cw Kell – K, k, Kpa Duffy –Fya, Fyb MNSs M, N, S, s Kidd – JKa, Jkb Lutheran – Lua Lewis – Lea, Leb P – P1 A1
Antibody Identification (IAT) Rh –, C,D,E,c,e, Cw Kell – K, K, Kpa Duffy –Fya, Fyb MNSs M, N, S, s Kidd – JKa, Jkb Lutheran – Lua Lewis – Lea, Leb P – P1 A1
Antibody Identification (Enzyme) Rh –, C,D,E,c,e, Cw Kell – K, K, Kpa Kidd – JKa, Jkb Lutheran – Lua Lewis – Lea, Leb P – P1 A1
Direct Antiglobulin Test
Antigen phenotyping C, c, E, e, , Fya, Fyb, Jka, Jkb, M, N, S, s, Lea, Leb, P1, Kpa, Lua, Cw and K
Compatibility testing
Detection and Estimation of Foetal Maternal Haemorrhage Kleihauer technique

Queen Elizabeth the Queen Mother Hospital Phlebotomy Hours

Phlebotomy opening times: Monday - Friday 8.30am - 4.30pm
Laboratory opening times for delivery of samples: Monday - Friday 8am - 8pm

If you are a patient requiring a GTT (Glucose Tolerance Test) fasting blood test, then please ring 01843 235000 (lines open Mon-Fri 9am-5.30pm) to make an appointment. On arriving in the department just take a seat and your name will be called.

Please ensure you bring your form with you at the time of your blood test. Failure to present this form may result in your test not being done and you having to make a return visit).

Buckland Hospital Dover Phlebotomy Hours

Opening times - Monday - Friday 8.00am to 3.45pm (Please note - opening and closing times may vary on occasion)

If you require a Glucose Tolerance Test (GTT) then please call 01304 222552 during the opening hours to make an appointment. On arriving in the department take a seat and your name will be called.

For all blood tests please ensure you bring your form with you at the time of your blood test. Failure to present this form may result in your test not being done and you having to make a return visit.

Kent & Canterbury Hospital Phlebotomy Hours

Phlebotomy opening times: Monday - Friday 8.30am - 4.45pm
Laboratory opening times for the delivery of samples: Monday - Friday 8am - 8pm
Telephone: 01227 866496 (please note this number cannot be used to book appointments)

Appointments for a glucose tolerance test are made via Ambulatory Care following request received directly from the GP.

Please ensure you bring your form with you at the time of your blood test. Failure to present this form may result in your test not being done and you having to return at a later date.

Royal Victoria Hospital Folkestone Phlebotomy Hours

Opening times - Monday - Friday 8.30am - 4pm and Saturday 9am – 12 midday.

If you require a Glucose Tolerance Test (GTT) fasting blood test then please call 01303 854484 Monday - Friday between 10.30am and 12 midday to make an appointment. On arriving in the department take a seat and your name will be called.

For all blood tests please ensure you bring your form with you at the time of your blood test. Failure to present this form may result in your test not being done and you having to make a return visit.

William Harvey Hospital Ashford Phlebotomy Hours

Phlebotomy opening times: Monday - Friday 8.30am - 5.00pm.
Laboratory opening times for delivery of samples: Monday – Friday 8am – 8pm, Saturday 9am - 12pm

If you are a patient requiring a GTT (Glucose Tolerance Test) fasting blood test, then please ring 01233 616060 and select option 1 to make an appointment. On arriving in the department please take a seat and your name will be called.

Please ensure you bring your form with you at the time of your blood test. Failure to present this form may result in your test not being done and you having to make a return visit.