Spire Healthcare
Pathology Services

SPIRE LABORATORY MEDICINE	Ref:	SPS-QM-1200
	Issued By:	Head of Pathology Governance
	Approved By:	Laboratory Medicine Governance Committee
	Date:	April 2025
SERVICE USERS GUIDE	Applies to sites:	All Spire Hospitals where Spire Laboratory Medicine is the pathology services supplier
	Applies to colleague groups:	All colleagues using Spire Laboratory Medicine

SPIRE LABORATORY MEDICINE USERS GUIDE

CONTROLLED DOCUMENT

Table of Contents

1.0 Introduction

Spire Laboratory Medicine as part of Spire Healthcare, has one of the largest networks of independent laboratories in the UK. We perform in excess of 1.5 million tests a year for the hospitals within the Spire Healthcare group as well as external customers including both the independent and NHS sectors.

Our truly integrated network of multidisciplinary and specialist laboratories are supported by nationally renowned consultants, excellent logistics and full electronic connectivity. This has resulted in a unique clinically led, efficient customer focused pathology service. Spire Laboratory Medicine has transformed the way independent pathology is delivered to its customers, providing onsite pathology and a local presence throughout the UK allowing us to deliver cost-effective service of the highest quality and convenience.

See appendix 1 for the types of clinical services offered in the Spire Laboratory Medicine network. Most tests are tested within the network of laboratories, but esoteric providers are used for specialist tests. A list of referred tests can be found in the test repertoire.

See appendix 2 for the Test Repertoire which details the most requested tests. Enquiries for tests not on the repertoire can be made by contacting Spire Laboratory Medicine Business Services Team (laboratorymedicine@spirehealthcare.com)

2.0 Laboratory Medicine Location Details

Contact information

To Contact Spire Laboratory Medicine please see the section on Laboratory Information, our website **https://www.spirehealthcare.com/pathology**, or email us at laboratorymedicine@spirehealthcare.com

Service Delivery Overview

Our Laboratory Medicine Services are currently delivered from 11 locations across the UK. Our Elstree and Manchester locations are the central administration locations for the service providing additional tests.

UKAS accredited service number 8314

Laboratory Medicine Business Services Team

Spire Laboratory Medicine operates a single point of contact for supporting our users. If you require support, please contact The Pathology Business Services team. The team support all disciplines and laboratory sites and support a full range of enquiries including:

- Test and result enquire
- Add on requests
- General enquires
- New customer enquires
- Consumable enquires

The team can be contacted on:
Email: laboratorymedicine@spirehealthcare.com

Telephone: 0161 447 6878

The Laboratory Medicine Business Services Team operating hours are:

- Monday – Friday 07:00-18:00
- Saturday 08:00-16:00
- Sunday 08:00-12:00

*Public holidays may differ from these times.
If your enquiry is outside of these times and requires urgent action, please contact your supporting laboratory directly.
Please note, unfortunately this is not a patient facing service and we would ask you to contact your requestor or hospital / clinic site for further support.

Laboratory Medicine Senior Management Team

Laboratory Medicine Senior Management Team		
Role	**Name**	**Contact Details**
Director of Diagnostics	Chris Gunn	christopher.gunn@spirehealthcare.com Tel: 07874873583
Regional Laboratory Medicine Operations Manager (North)	Claire Grinnell	claire.grinnell@spirehealthcare.com Tel: 07770814993
Regional Laboratory Medicine Operations Manager (South)	David Hall	david.hall@spirehealthcare.com Tel: 07718565464
Head of Pathology Governance	Fiona McLeman	fiona.mcleman@spirehealthcare.com Tel: 07720736827
Pathology Engagement Manager	Martin Phillips	martin.phillips@spirehealthcare.com Tel: 07718487363

Service Locations with hospitals supported

Laboratory Medicine Service locations and contact details are listed on the following pages in alphabetical order and spoke sites providing analytical services are listed below them:

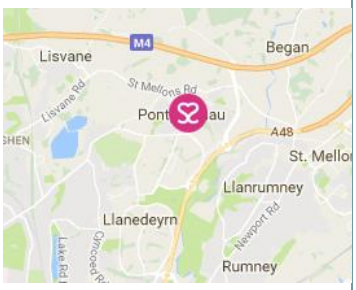
Key:

- Spire Laboratory Hub site
    - Spire laboratory Spoke site
        - Spire supported hospital

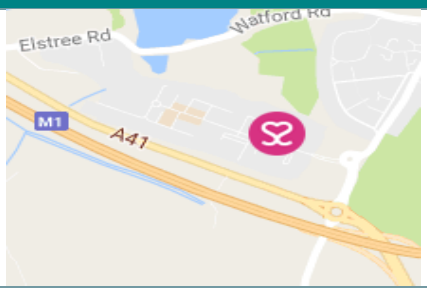
- Spire Laboratory Medicine Bristol
    - Spire Cardiff
- Spire Laboratory Medicine Centennial Park, Elstree
    - Spire Dunedin
    - Spire Montefiore
        - Spire Thames Valley
        - Spire Harpenden

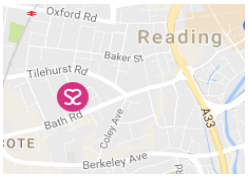
- Spire Laboratory Medicine Hartswood
    - Spire London East
    - Spire Wellesley
    - Spire Cambridge Lea
- Spire Histology Centre, Manchester (All Spire Hospitals supported)
- Spire Laboratory Medicine Leeds
    - Spire Hull and East Riding
    - Spire Washington
        - Spire Elland
        - Spire Methley Park
        - Spire Harrogate Clinic
- Spire Laboratory Medicine Manchester
    - Spire Wirral
    - Spire Cheshire
    - Spire Liverpool
    - Spire Regency
    - Spire Yale
    - Spire Fylde Coast
    - Spire Abergele Clinic
- Spire Laboratory Medicine Murrayfield Edinburgh
    - Spire Shawfair Park
- Spire Laboratory Medicine Nottingham
    - Spire Leicester
- Spire Laboratory Medicine Parkway
    - Spire Little Aston
    - Spire South Bank
- Spire Laboratory Medicine Southampton
    - Spire Portsmouth
- Spire Laboratory Medicine St Anthony's
    - Spire Alexandra
    - Spire Tunbridge Wells
    - Spire Gatwick Park

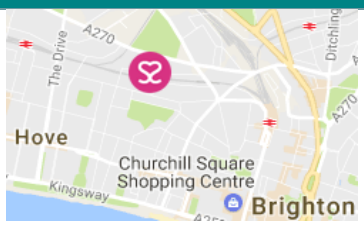
2.4.1 Spire Laboratory Medicine Bristol		
		**Address:** Spire Bristol Hospital The Glen, Redland Hill Durdham Down Bristol BS6 6UT
Laboratory located: Floor 1 – Specimen reception halfway down hill on left hand side Sample drop off point: Laboratory Medicine entrance (if department closed main hospital reception)		What3words location: also.wells.nasal
Laboratory Opening Times:	**Days** Monday – Friday Saturday Sunday 24 hour On-Call	**Times** 08.00 – 20.00 08.00 – 16.00 08.00 – 16.00 Tel: 077 3629 0284
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Manager:	Rachel Ward	
Laboratory Deputy Manager:	Hazim Elhalabi	
Laboratory Contact Details:	Telephone: 01179 804072 Email: BristolPathology@spirehealthcare.com	
Consultant's Specialty	**Consultant Name**	**Qualifications**
Biochemistry:	Dr A Day	MA MSc MB BS FRCPath
Haematology/Transfusion:	Dr S Robinson	MBBS, BSc, FRCP, FRCPath, PhD
Histology:	Dr J Oxley	FRC Path
Microbiology/Infection Control:	Dr J Stone	FRC Path

2.4.1.1 Spire Laboratory Medicine Bristol – Spire Cardiff spoke site		
		**Address:** Spire Cardiff Hospital Croescadarn Road Pentwyn Cardiff CF23 8XL
Laboratory located on Ground Floor Sample drop off point: Main hospital reception		What3words location: neon.staple.belly
Laboratory Opening Times:	**Days** Monday – Friday	**Times** 09.00 – 17.00 At all other times contact Spire Bristol

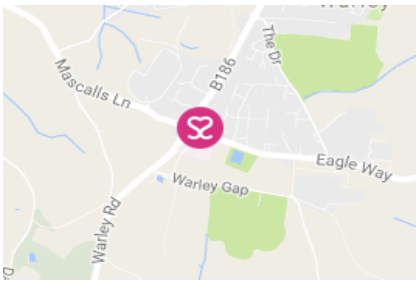
Consultant's Specialty	Consultant Name	Qualifications
Biochemistry:	Dr D Datta	MBBCh MD MRCP FRC Path
Haematology/Transfusion:	Dr A Al-Sabah Dr A Goringe	MBChB, MRCP, FRCPath MBChB, MRCPath, FRCPath
Histology:	Dr M Rashid Dr T Hockey Dr J Harrison	MBCHb, FRCPath, FRCP MBBCh FRCPath MBChB. BSc. (Hons) FRCPath
Microbiology/Infection Control:	Dr E Kubiak Dr Gaur	BSc, MBChB, FRCPath BSc, MBBS, MRCPath

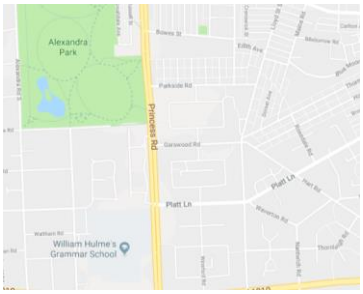
2.4.2 Spire Laboratory Medicine Centennial Park Elstree		
		**Address:** Spire Pathology Services Centennial Park 512 Centennial Park Centennial Avenue Elstree, Borehamwood WD6 3FG
The Laboratory is a purpose-built site close to Spire Bushey Hospital Sample drop off point: At the laboratory, out of hours with arrange via the on-call Biomedical Scientist		What3words location: doll.descended.mixed
Laboratory Opening Times:	**Days** Monday – Friday Saturday Sunday 24 hour On-Call	**Times** 07.30 – 20.00 09.00 – 17.00 On Call Tel: 07702 563374
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Manager:	Lesley Bloom	
Deputy Laboratory Manager	Pamela Lanning	
Laboratory Contact Details:	Telephone: 020 8238 6830 Email: $hospbusheypathology@spirehealthcare.com	
Consultant's Specialty	**Consultant Name**	**Qualifications**
Biochemistry:	Dr David Sinclair Dr Sophy Smith	BSc, PhD, Csci, EuClinChem PhD FRCPath
Haematology/Transfusion:	Dr Branislav Czako	MUDr
Histology:	Dr Joseph El Jabbour Dr Paul Mitra Dr Ezra Nigar Dr Rowena Smith Dr Fiona Scott Dr Anju Agarwal Dr Adam Levene Dr Khurram Chaudhary Dr Matilda Ralph Dr Anupama Swamy Dr Anupam Joshi	MD MBBS MBBS MB ChB MB ChB MBBS MB ChB MBBS Phd FRCPath MBBS MBBS, MD, FRCPath MBBS, MD, FRCPath
Microbiology/Infection Control:	Dr Hala Kandil	FRCPath

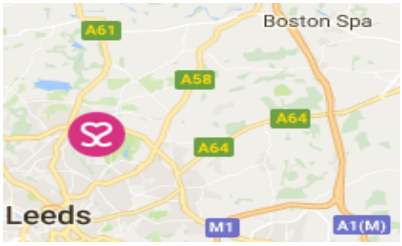
2.4.2.1 Spire Laboratory Medicine Centennial Park Elstree – Spire Dunedin Spoke site		
		**Address:** Spire Dunedin Hospital 22 Bath Road Reading Berkshire RG1 6NS
Laboratory located in a separate building. Sample drop off point: Main hospital reception		What3words location: prone.became.tips
Laboratory Opening Times:	**Days** Monday – Friday	**Times** 09.00 – 17.00 At all other times contact Spire Centennial Park
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Contact Details:	Telephone: 0118 9553459 Email: dunedinpat@spirehealthcare.com	
Consultant's Specialty	**Consultant Name**	**Qualifications**
Biochemistry:	Dr David Sinclair	BSc, PhD, Csci, EuClinChem
Haematology/Transfusion:	Dr Pratap Neelakanta	MBBS, MRCP, FRCPath, MD

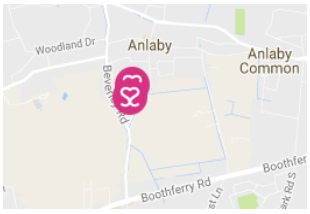
2.4.2.2 Spire Laboratory Medicine Centennial Park Elstree – Spire Montefiore Spoke site		
		**Address:** 2 Montefiore Road Hove East Sussex BN3 1RD
Located at The Montefiore Hospital, Basement Sample drop off point: Use the Side Entrance in the car park of The Montefiore Hospital, Montefiore Rd. Press call point to speak to Reception/Ward; ask for Pathology and await someone to collect		What3words location: rises.rents.arch
Laboratory Opening Times	**Days** Monday – Friday	**Times** 08.00 – 18.00 At all other times contact Spire Centennial Park
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Contact Details:	Telephone: 01273 828124	
Consultant's Specialty	**Consultant Name**	**Qualifications**
Biochemistry:	Dr David Sinclair Dr Sophy Smith	BSc, PhD CSci EurClinChem PhD FRCPath
Haematology/Transfusion:	Dr Tim Corbett Dr Tim Chevassut	FRCPath PhD MA FRCPath MD

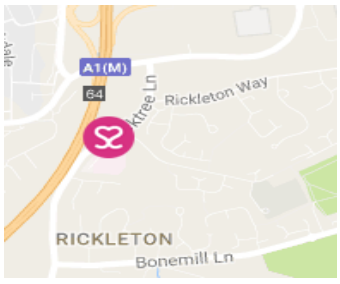
Histology:	Service provided at Spire Histology centre	See section 2.4.4
Microbiology/Infection Control:	Dr Sunil Sharma	MBBS MRCPath

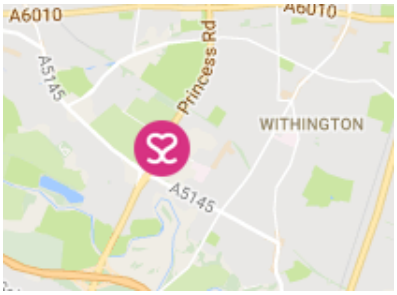
2.4.3 Spire Laboratory Medicine Hartswood		
		**Address:** Spire Hartswood Hospital Eagle Way Brentwood Essex CM13 3LE
Laboratory located on First Floor Sample drop off point: Main hospital reception		What3words location: glaze.drips.entertainer
Laboratory Opening Times:	**Days** Monday – Friday Saturday Sunday 24 hour On-Call	**Times** 08.00 – 20.00 09.00 – 17.00 On Call Tel: 07768 545955
Laboratory Medcine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Manager:	Kirolos Gabiows	
Deputy Laboratory Manager:	Glenn Owusu-Moore	
Laboratory Contact Details:	Telephone: 01277 266740 Email: HWPATH@spirehealthcare.com	
Consultant's Specialty	**Consultant Name**	**Professional Registration number**
Biochemistry:	Dr Catherine Street Dr D Collins	HCPC CS03441 HCPC CS022532
Haematology/Transfusion:	Dr Parag Jasani Dr Branislav Czako	GMC 6037692 GMC 6168735
Histology:	Dr D Kamel Dr D Al-Okati Dr I T Saeed Dr R Prasad	GMC 4647014 GMC 3531804 GMC 2777827 GMC 6114575
Microbiology/Infection Control:	Dr Justin Edwards	GMC 4529284

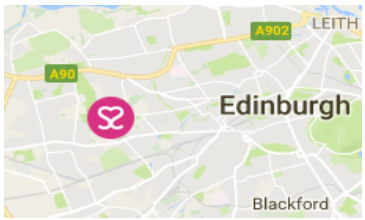
2.4.4 Spire Laboratory Medicine Histology Centre, Manchester				
			**Address:** Spire Histology Centre Parkway 1 Ground floor Princess Road Manchester M14 7LU	
Laboratory located on Ground Floor Sample drop off point: Back of the building at Parkway 1			What3words location: relax.strike.remote	
Laboratory Opening Times:		**Days** Monday – Friday Saturday	**Times** 07.00 – 20.00 07.00 – 15.00	
Laboratory Medicine Business Services Team Single point of contact		0161 447 6878	laboratorymedicine@spirehealthcare.com	
Laboratory Manager:		Anthony Gledhill		
Deputy Laboratory Manager:		Ashley Annesley & Jennifer Daubney		
Laboratory Contact Details:		Telephone: 0161 447 6777 Option 5 or 01625 585552 Email: manchesterhosphistology@spirehealthcare.com		
	Consultant Name	**Professional registration number**	**Consultant Name**	**Professional registration number**
Histology:	Professor Najib Haboubi Dr Louisa Motta-Forero Dr Sara Edward Dr Lynne Jamieson Dr Emil Salmo Dr Mohammed Bashir Dr Leena Joseph Dr Sangeeta Verma Dr Sudha Desai Dr Anna Davenport Dr Essam Raweily Professor Roger Hunt Dr Nadine Elgeredley Dr Gauri Batra	GMC 2628473 GMC 6081714 GMC 4737522 GMC 4738004 GMC 5187728 GMC 4280886 GMC 5203479 GMC 5198561 GMC 4737522 GMC 4434386 GMC 4680376 GMC 3335981 GMC5180776 GMC 5201015	Dr Shailesh Agrawal Dr Rajagopal Saravana Dr Pedro Oliveira Dr Patrick Shenjere Dr Nisha Ali Dr Kavita Singhal	GMC 6093729 GMC 6068710 GMC 7524386 GMC 6080402 GMC 6093064 GMC 6168783

2.4.5 Spire Laboratory Medicine Services Leeds		
		**Address:** Spire Leeds Hospital Jackson Avenue Roundhay Leeds LS8 1NT
Laboratory located on Ground Floor Roundhay Hall Sample drop off point: Main hospital reception		What3words location: forces.marker.sadly
Laboratory Opening Times:	**Days** Monday – Friday Saturday Sunday 24 hour On-Call	**Times** 07.00 – 20.00 09.00 – 16.00 09.00 – 13.00 Tel: 01132 693939
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Manager:	Caroline Smith	
Deputy Laboratory Manager:	Richard McBain	
Laboratory Contact Details:	Telephone: 01132 185947 Email: LeedsHospsharedpathology@spirehealthcare.com	
Consultant's Specialty	**Consultant Name**	**Qualifications**
Biochemistry:	Dr David Sinclair Dr Sophy Smith	BSc, PhD CSci EurClinChem PhD FRCPath
Haematology/Transfusion:	Dr R Johnson Dr Richard Kelly	MD MBChB MRCP FRCPath BSc (hons), MBChB, MRCP(UK), FRCPath, PhD
Histology:	Dr A Boon Dr N Scott Dr P Chengot Dr L Sanni Dr S Bhattarai Dr B Matthews Dr O Rotimi Dr A Nijawan Dr S Edwards	FRCPath FRCPath FRCPath FRCPath FRCPath FRCPath FRCPath FRCPath FRCPath
Microbiology/Infection Control:	Dr Andrew Dodgson Dr Alex Peel Dr Kirsty Dodgson Dr K Mutton	FRCPath FRCPath Csci FRCPath

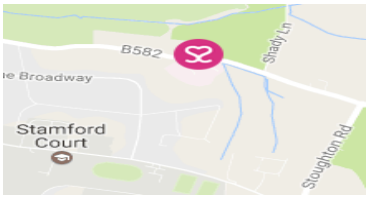
2.4.5.1 Spire Laboratory Medicine Leeds – Spire Hull and East Riding spoke site		
		**Address:** Lowfield Road Anlaby East Yorkshire HU10 7AZ
Laboratory located on First floor of Lowfield Building Sample drop off point: Reception at Lowfield Building		What3words location: will.jobs.select
Laboratory Opening Times:	**Days** Monday – Friday	**Times** 08:30 – 17:00 At all other times contact Spire Leeds
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Contact Details:	Telephone: 01482 660251	
Consultant's Specialty	**Consultant Name**	**Qualifications**
Biochemistry:	Dr David Sinclair Dr Sophy Smith	BSc, PhD CSci EurClinChem PhD FRCPath
Haematology/Transfusion:	Dr Richard Kelly	BSc (hons), MBChB, MRCP(UK), FRCPath, PhD

2.4.5.2 Spire Laboratory Medicine Leeds – Spire Washington spoke site		
		**Address:** Picktree Lane Rickleton Washington, Tyne & Wear NE38 9JZ
Located at the bottom of the OPD corridor next to the Phlebotomy room Sample drop off point: Main hospital reception		What3words location: code.polite.slip
Laboratory Opening Times	**Days** Monday – Friday Saturday, Sunday and out of hours	**Times** 08.30 – 16.30 Covered by QE Gateshead
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com

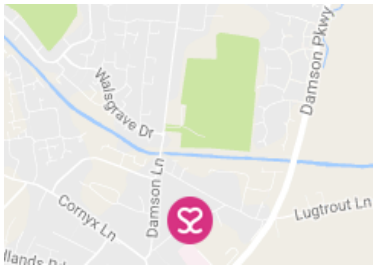
Laboratory Contact Details:	Telephone: 0191 415 1182 Email: LeedsHospsharedpathology@spirehealthcare.com	
2.4.6 Spire Laboratory Medicine Manchester		
		**Address:** Spire Manchester Hospital 170 Barlow Moor Road Didsbury Manchester M20 2AF
Main Laboratory and Microbiology located on the Second floor. Sample drop off point: Main hospital reception		What3words location: speaks.cubs.gives
Laboratory Opening Times:	**Days** Monday – Friday Saturday Sunday 24 hour On-Call	**Times** 07.30 – 20.00 08.00 – 17.00 09.00 – 17.00 Tel: 0161 447 6777
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Manager:	Anthony Gledhill	
Deputy Laboratory Manager:	Helen Hesketh	
Laboratory Contact Details:	Telephone: 0161 447 6777 Fax: 0161 447 6775 Email: manchesterhosppathologycustomers@spirehealthcare.com	
Consultant's Specialty	**Consultant Name**	**Qualifications**
Biochemistry:	Dr David Sinclair Dr Sophy Smith	BSc, PhD CSci EurClinChem PhD FRCPath
Haematology/Transfusion:	Dr H Patel DR Rowena Thomas-Dewing	FRCPath FRCPath
Histology:	Service provided at Spire Histology centre	See section 2.4.4
Microbiology/Infection Control / Virology:	Dr Andrew Dodgson Dr Alex Peel Dr Kirsty Dodgson Dr K Mutton	FRCPath FRCPath Csci FRCPath

2.4.7 Spire Laboratory Medicine Murrayfield Edinburgh		
		Address: Spire Murrayfield Edinburgh Hospital 122 Corstorphine Road Edinburgh EH12 6UD
Laboratory is located left of the main reception on the ground floor. Sample drop off point: Main hospital reception		What3words location: swaps.good.shops
Laboratory Opening Times:	**Days** Monday – Friday Saturday Sunday 24 hour On-Call	**Times** 08.00 – 18.00 09.00 – 13.00 On call service Tel: 0131 334 0363
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Manager:	Symon Lockhart	
Deputy Laboratory Manager:	Mark Dorrance	
Laboratory Contact Details:	Telephone: 0131 316 2521 Email: edpathology@spirehealthcare.com	
Consultant's Specialty	**Consultant Name**	**Qualifications**
Biochemistry:	Dr Sara Jenks Dr Jonathan Malo	FRCPath FRCPath
Haematology/Transfusion:	Dr Mark Drummond Dr Edward Fitsimmons	FRCPath FRCPath
Histology:	Service provided at Spire Histology centre	See section 2.4.4
Microbiology/Infection Control:	Dr David Griffiths Dr Simon Dewar Dr Ian Laurenson	PhD MRCPath PhD FRCPath PhD MRCPath

2.4.8 Spire Laboratory Medicine Nottingham		
		**Address:** Spire Nottingham Hospital Pathology Department Tollerton Lane Tollerton Nottingham NG12 4GA
Laboratory located at the end of the Administration wing on the ground floor Sample drop off point: Pathology entrance to Spire Nottingham hospital. At the rear of the hospital, on the left-hand side of the building when looking from the road. Out of hours to main hospital reception		What3words location: army.could.shops
Laboratory Opening Times:	**Days** Monday – Friday Saturday Sunday 24 hour On-Call	**Times** 08.00 – 18.00 09.00 – 15.00 on-call thereafter On call service Via Spire Nottingham Switchboard. 0115 937 7800
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Manager:	Priscilla Patel	
Deputy Laboratory Manager:	James Clark	
Laboratory Contact Details:	Telephone: 0115 937 7808 Email: nottinghampathology@spirehealthcare.com	
Consultant's Specialty	**Consultant Name**	**Qualifications**
Biochemistry:	Dr P Prinsloo	MBChB, FRCP, FRCPath, CSci
Haematology/Transfusion:	Dr H Qureshi	MB, BS, MRCP, FRCPath
Histology:	Service provided at Spire Histology centre	See section 2.4.4
Microbiology/Infection Control:	Dr Nikunj Mahida	MBChB, MRCP, FRCPath, MSc

2.4.8.1 Spire Laboratory Medicine Nottingham – Spire Leicester spoke site		
		**Address:** Spire Leicester Hospital Gartree Road Oadby Leicester LE2 2FF
Laboratory located on first floor past Oncology Sample drop off point: Main hospital reception		What3words location: cute.person.upset
Laboratory Opening Times:	**Days** Monday – Friday	**Times** 09.00 – 17.00 At all other times contact Spire Nottingham
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Contact Details:	Telephone: 01162 653018 Email: nottinghampathology@spirehealthcare.com	

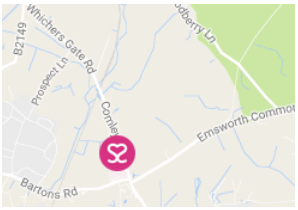
Consultant's Specialty	Consultant Name	Qualifications
Biochemistry:	Dr J Falconer Smith	DM FRCPath
Haematology/Transfusion:	Dr H Qureshi Dr M Martin	MB BS MRCP FRCPath MB BCh FRCPath
Histology:	Dr P Da Forno Dr G Saldahna Dr M Bamford Dr R Hew Dr J Dormer Dr D Purnell Dr C Richards Dr E Pointen Dr Hala Rasheed Dr Catherine Moreman	MBChB MD FRCPath MBChB PhD MRCP FRCPath FRCPath DipRCPath FRCPath FRCPath FRCPath FRCPath MBChB FRCPath MBChB FRCPath BSc Med Sci, MBChB, FRCPath'
Microbiology/Infection Control:	Dr D Modha Dr S Bukhari	BSc Hons, MB ChB,MSc,FRCPath MBBS, DGUMed MSc, FRCPath

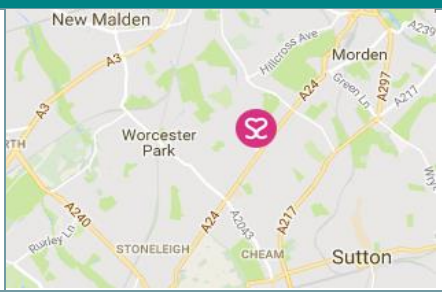
2.4.9 Spire Laboratory Medicine Parkway		
		**Address:** Spire Parkway Hospital 1 Damson Parkway Solihull West Midlands B91 2PP
Laboratory Location: Outpatient suite ground floor Sample drop off point: Report at reception then be directed directly to Pathology		What3words location: pizza.nest.jokes
Laboratory Opening Times	**Days** Monday – Friday Saturday Sunday 24 hour On-Call	**Times** 08.00 – 20.00 09.00 – 17.00 09.00 – 17.00 Tel: 07860 895953
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Manager:	Peter Manning	
Deputy Laboratory Manager:	Danielle Turnbull	
Laboratory Contact Details:	Telephone: 0121 704 5564 Email: parkpathology@spirehealthcare.com	
Consultant's Specialty	**Consultant Name**	**Qualifications**
Biochemistry:	Dr S Ramachandran	LRCP MRCS MRCPath
Haematology /Transfusion:	Dr Kartsios	FRCPath
Histology	Service provided at Spire Histology centre	See section 2.4.4
Microbiology/Infection Control:	Dr Nikunj Mahida	MBChB, MRCP, FRCPath, MSc

2.4.9.1 Spire Laboratory Medicine Parkway - Spire Little Aston spoke site		
		**Address:** Spire Little Aston Hospital Little Aston Hall Drive Sutton Coldfield B74 3UP
Laboratory located on the First Floor opposite the Theatre dept. Sample drop off point: At the laboratory		What3words location: royal.maybe.wedge
Laboratory Opening Times:	**Days** Monday – Friday Saturday Sunday 24 hour On-Call	**Times** 09.00 – 17.00 09:00 – 12:00 On call only Tel: 07860 895953
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Contact Details:	Telephone: 0121 580 7237 Email: littleastonpathology@spirehealthcare.com	
Consultant's Specialty	**Consultant Name**	**Qualifications**
Haematology/Transfusion:	Dr Matthew Lumley Dr Vinayak Tandon	MBChB, MRCP, MRCPath MBBS, MD, MRCP, FRCPath
Histopathology	Service provided at Spire Histology centre	See section 2.4.4
Microbiology	Dr Nikunj Mahida	MBChB, MRCP, FRCPath, MSc

2.4.10 Spire Laboratory Medicine Southampton		
		**Address:** Spire Southampton Hospital Chalybeate Close Southampton, SO16 6UY
Laboratory is located on the first floor next to outpatients Sample drop off point: Main hospital reception		What3words location: hike.span.neck
Laboratory Opening Times	Days Monday – Friday Saturday Sunday 24 hour On-Call	Times 07.00 – 22.00 08.00 – 16.00 09.00-17.00 Tel: 02380 775544
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Manager:	Rosie Burns	
Deputy Laboratory Manager:	Luminita Georgescu	
Laboratory Contact Details:	Telephone: 02380 914447 Email: southamptonpathology@spirehealthcare.com	

Consultant's Specialty	Consultant Name	Qualifications
Biochemistry:	Dr David Sinclair Dr Sophy Smith	BSc, PhD CSci EurClinChem PhD FRCPath
Haematology/Transfusion:	Dr Matthew Jenner Dr Rashid Kazmi Dr Srini Narayanan Dr Seonaid Pye	FRCPath FRCPath FRCPath BMedSci, BM, BS, MD, FRCP, FRCPath
Histology:	Dr Vidi Bhargava Dr Adrian Bateman Dr Vipul Foria Dr Sanjay Jogai Dr Jeffery Theaker Dr Victoria Elliot Dr Charles Tilley Dr Harriet Nitch-Smith Dr Karwan Moutasim	FRCPath FRCPath MBBS MRCPath Dip. Path (Cyt) MD FRCPath FRCPath FRCPath FRCPath MBBS MRCS MD FRCPath BDS, MFDRCS, MOMedRCS, MSc, PhD, FRCPath
Microbiology/Infection Control:	Dr Matthew Dryden	FRCPath

2.4.10.1 Spire Laboratory Medicine Southampton - Spire Portsmouth spoke site			
		**Address:** Spire Portsmouth Hospital Bartons Road Havant PO9 5NP	
Laboratory located 1st floor adjacent to theatres. Sample drop off point: Main hospital reception		What3words location: drove.major.play	
Laboratory Opening Times	**Days** Monday – Friday	**Times** 09.00 – 17.00 At all other times contact Spire Southampton	
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com	
Laboratory Contact Details:	Telephone: 02392 456 030		
Consultant's Specialty	**Consultant Name**	**Qualifications**	
Biochemistry:	Dr David Sinclair Dr Sophy Smith	BSc, PhD CSci EurClinChem PhD FRCPath	
Haematology/Transfusion:	Dr Mary Ganczakowski Dr C James Dr Charles Alderman	FRCPath FRCPath FRCPath	
Histology:	Dr N Agrawal Dr P Gonda Dr D Poller Dr D Tansey Dr N Shepherd Dr J Cooke	MD FRCPath FRCPath FRCPath MRCPath MB ChB FRCPath FRCPath	
Microbiology/Infection Control:	Dr H Chesterfield Dr R Porter Dr S Wyllie	MRCP FRCPath FRCPath MRCP MB BS BSc MBChB MA MRCP FRCPath MSc	

2.4.11 Spire Laboratory Medicine St Anthony's		
		**Address:** Spire St Anthony's Hospital 801 London Road Cheam, Sutton Surrey SM3 9DW
Laboratory is located in the main ground floor corridor Sample drop off point: Main hospital reception		What3words location: skips.slug.frame
Laboratory Opening Times	Days Monday – Friday Saturday Sunday and Bank Holidays 24 hour On-Call	Times 08.00 – 20.00 09.00 – 16.00 09:00 – 13:00 Tel: 02083376691
Laboratory Medicine Business Services Team Single point of contact	0161 447 6878	laboratorymedicine@spirehealthcare.com
Laboratory Manager:	Elke Stevenson	
Deputy Laboratory Manager:	David Stokes	
Laboratory Contact Details:	Telephone: 02083354520 Email: stanthonyspathology@spirehealthcare.com	
Consultant's Specialty	**Consultant Name**	**Qualifications**
Biochemistry:	Dr Nikhil Johri	MBBS, MSc, FRC Path
Haematology/Transfusion:	Dr Simon Stern Dr Pawel Kaczmarek Dr Gleb Ivanov Dr Caroline Ebdon	MB BS FRCPath PhD MBBS MRCPath MD PhD MRCP FRCPathMB BSc (Hons) MBBS FRCPath
Microbiology/Infection Control:	Dr Jim Stephenson	MA MBBBF MSc MRCPath

3.0 Laboratory Medicine Quality Policy

Spire Laboratory Medicine is committed to providing the highest quality pathology service to all our customers, across all disciplines. To this end and where applicable our laboratories are registered with UKAS (standards ISO 15189) and the Medicines and Healthcare products Regulatory Agency (MHRA). The scope of services provided by Spire Laboratory Medicine is appropriate to suit the purpose of the organisation and includes biochemistry including special chemistry, blood transfusion, coagulation, cytology, endocrinology, haematology, histology, microbiology and virology. There are contracts in place to ensure all other requests for sample testing are carried out by accredited laboratories.

- Spire Laboratory Medicine keeps the needs of our clients at the heart of all we do as measure through our user survey, internal audit and external quality assessment
- Spire Laboratory Medicine operates a quality management system to integrate the organisation's procedures, processes and resources which include a commitment to good professional practice, examinations that are fit for intended use, and are compliant with ISO15189. Quality objectives and plans are set in order to implement this quality policy and achieve continual quality improvement. This provides a framework for establishing and reviewing quality objectives.
- Spire Laboratory Medicine ensures that all staff are familiar with and have access to the Quality Policy, Quality Manual and Standard Operating Procedures, helping to ensure best practice. These documents undergo review to ensure continuing suitability.
- Good professional practice is also supported through appropriate staff recruitment, training and by encouraging and facilitating continuous professional development.
- Spire Laboratory Medicine is committed to ensuring the health, safety and welfare of all staff and visitors through Good Laboratory Practice
- Spire Laboratory Medicine commits to comply with relevant environmental legislation through departmental audit, management review, training and adherence to Standard Operating Procedures
- Spire Laboratory Medicine will comply with standards set by UKAS ISO 15189, CQC, HIS, HIW and The Blood Safety and Quality Regulations
- Spire Laboratory Medicine is committed to the proper procurement and maintenance of such equipment and other resources as are needed for the provision of the service.
- Spire Laboratory Medicine ensures the collection, transport and handling of all specimens in such a way as to ensure the correct performance of laboratory examinations.
- Spire Laboratory Medicine commits to the use of examination procedures that will ensure the highest achievable quality of all tests performed.
- Spire Laboratory Medicine ensures reporting results of examinations in ways which are timely, confidential, accurate and clinically useful.
- Spire Laboratory Medicine is committed to the assessment of customer satisfaction, in addition to internal audit, external quality assessment, identification and control of nonconformities in order to produce continual quality improvement ref: SPS-QM-0800
- Where Spire Laboratory Medicine operates split site services for a discipline the responsibilities shall be documented in the quality manual

Our vision

To be recognised as a world class healthcare business.

Our mission

To bring together the best people who are dedicated to developing excellent clinical environments and delivering the highest quality patient care.

Our values

Caring is our passion
Succeeding and celebrating together
Driving clinical excellence
Doing the right thing
Delivering on our promises
Keeping it simple

Our Purpose

Making a positive difference to people's lives through outstanding personalised care

4.0 Quality assurance

All Spire Laboratory Medicine departments participate in National and Local Quality Assurance Schemes. Our performance in each speciality is immediately available for inspection upon request. Each discipline is overseen professionally by a consultant who monitors both the internal and external quality control for the relevant department. The Consultant is also available to give advice on the interpretation of results and clinical recommendations. Spire Laboratory Medicine departments aim to provide a personal, high-quality service in terms of technical quality and clinical effectiveness.

5.0 Reports

All urgent, grossly abnormal or clinically significant results are reported by telephone in line with RCPath guidelines The communication of critical and unexpected pathology results v1.
All reference ranges are quoted on the printed report against each test result. Any results outside of the normal reference range are highlighted on the report.

Reference ranges are from harmonised ranges where possible. When this is not possible, they are taken from the manufacturers package inserts for Biochemistry and from Dacie and Lewis 12th Edition for Haematology.

All clinical interpretation on the report is by a named Consultant who has practicing rights for Spire Hospitals. The exception is referred samples to outside providers when clinical interpretation has been written by the referred laboratory Consultant of choice.
Any results received from a laboratory other than Spire will state where the results were received from.

Reports once validated by laboratory staff are available for viewing on the Cyberlab facility. This facility is available upon request to Spire IT services.
Unless a local agreement is in place for reports to be printed in exceptional circumstances, as all reports should be accessed via Cyberlab.

6.0 Request forms

See box below for request form completion.

The form must be labelled as **URGENT** if required. These samples will be prioritised by the laboratory and printed results will be available as soon as possible. If results need to be telephoned, please indicate this on the request form.

Essential	Desirable

• Hospital number
• Patient's full name or unique coded identifier
• Date of birth
• Gender
• Patient's location and destination for report
• Patient's Consultant, GP or name of requesting practitioner
• Investigation(s) required
	• Clinical information including relevant medication and travel history. HSE require the following to be included:
	  ○ recent travel history
	  ○ consumption of unpasteurised milk or cheese products
	  ○ contact with imported animals
	  ○ other relevant clinical symptoms or information
	• Date and time sample collected (which is sometimes essential dependant on the examination being carried out)
	• Patient's address including postcode
	• Practitioners contact number (bleep or extension)
	• Type of primary sample and where relevant the anatomical site of origin (essential for histology specimens and microbiology samples also if it is left or right-if appropriate)
	• Account number
	• Identity of person taking sample

There are five different request forms:

- Collection of multiple samples from the same patient must be labelled to ensure unequivocal identification
- Histology and non-gynaecological cytology request form must also include the nature of specimen.
- Cervical cytology request form. All boxes on the request form should be completed.
- Combined request from for Haematology, Biochemistry, Endocrinology and Microbiology with a separate box for other tests.
- Transfusion request forms. All boxes must be completed, and request form signed by the requesting clinician.
- Immunology and allergy testing request form – available from any Spire Laboratory and in the Laboratory Medicine section of clinical specialities on the clinical intranet.
- Note: Some external customers may have bespoke request forms

6.1 Electronic requesting of pathology tests

Requests can be made electronically using Hospital Management System (HMS) Ordercoms. The guide to use this can be found in the pathology section of the Clinical Intranet
https://intranet.spirehealthcare.net/clinical-intranet/clinical-specialities/laboratory-medicine/

7.0 Specimen collection

Observe any dietary requirements and any other appropriate preparatory instructions before performing investigations. Always use the correct container as specified in the test index. If in doubt as to requirements, please contact the laboratory. Never decant a specimen from a wrong tube into the correct tube. Check integrity of specimen container and expiry date, if relevant, prior to use. Gently mix blood-filled, anticoagulant tubes by inversion. All clotted samples must be centrifuged before refrigeration.

Splitting primary patient samples

Where possible avoid having to split the primary sample, however there are instances where this may be required e.g. a urine sample for Biochemistry and Microbiology. If this is the case:

- The primary sample must not have been taken into a primary container with a preservative.
- Ensure there is sufficient material for both tests
- Where possible re-print the Ordercomms label for use on the secondary container
- When handwriting, please follow the guidance in section 8.0

Microbiology sample collection

See Appendix 6

Histopathology sample collection and labelling

Samples which have been collected for Histopathology must be taken into formalin, unless there has been prior discussion with the processing laboratory e.g. frozen section, Lymph nodes.
All samples must be labelled as per section 8.0 below and must contain information of the site and source of the sample. Where multiple samples are taken e.g. in a series, each container must have a unique identification
See working instructions SPS-GP-WI1420 - Histology Sample Preparation

Specimens not handled by Spire Laboratory Medicine departments

Specimens from patients who are or may be infected with the following will not be handled or referred by this laboratory:

Simian Herpes Virus
Lassa Fever Virus
Marburg Virus
Rabies Virus
Smallpox Virus
Ebola Virus
Zika Virus

The following genetics testing cannot be managed via Spire Laboratory Medicine

Huntington's Presymptomatic Testing (Predictive)
Familial adenomatous polyposis coli (FAP) and MUTYH-associated polyposis (MAP)
Fragile X Syndrome
Haemophilia A and Haemophilia B
Mitochondrial Disease

8.0 Specimen labelling

All specimens **MUST** be labelled, following collection and before leaving the patient. Samples will be rejected if they do not contain Essential information

Essential	Desirable
• Hospital Number* (if not available the first line of the address should be included. *Needlestick injuries and Occupational Health requests are the exception to this) • Patients full name or unique coded identifier (first name and surname counted as 2 identifiers) • Date of Birth	• Date and Time of collection (essential for Transfusion specimens) • Nature of sample, including qualifying details, e.g., left, distal etc. especially if more than one sample per request is submitted • Signature of phlebotomist (essential for transfusion specimens)

8.1 Blood transfusion specimens

The patient's full name, date of birth, hospital number and date and time of collection must be given on both specimen and form. In addition, the sample must be signed by the phlebotomist. The form must be signed by a clinician and the date and time of sampling must be completed with the name of the person taking the blood. The date and time of the operation and details of the procedure must also be given. In accordance with national guidelines, the address of the patient must be given on the request form. **DO NOT USE PRINTED LABELS ON SAMPLE**
The timing of sample collection is essential for blood product requests to conform to BCSH transfusion guidelines. This is detailed on the reverse of the transfusion request form.

8.2 High Risk Specimens

The following specimens are classified as "High Risk" or "Hazardous" samples. The form and sample should be marked clearly as such with a "Danger of Infection label". The sample must be contained in a plastic bag. The request must be placed in the separate pocket and not in the same compartment as the sample.

(1) Specimens from patients known to be Hepatitis B, Hepatitis C, HIV positive or Covid-19 positive or symptomatic for Covid-19.
(2) Specimens from renal unit patients who have not been screened for the above.
(3) Specimens from patients with infective or suspected infective diseases of the liver.
(4) Drug addicts.
(5) Specimens from patients who have or may have:
Brucellosis
Tuberculosis

Typhoid/Paratyphoid

9.0 Transportation of Samples to the Laboratory

There are four ways in which samples can be sent to the laboratory

- Surface transport - Samples are brought to the laboratory by hospital employed colleagues
- Surface transport of samples between sites – internal and external courier services or taxis.
- Postal services – Royal mail, HAYs DX, or other contractors
- Pneumatic air tube

All contracts with external customers shall have an SLA which details how the samples shall be transported to the laboratory

All necessary steps shall be undertaken to ensure the integrity of the samples and the safety of personnel, irrespective of the mode of transport delivery. The WHO guidance on Regulations for the Transport of Infectious Substances 2011-2012 is implemented.

It is important that samples are sent to the laboratory within a time frame appropriate to the nature of the requested examinations. All specimens should be transported to the laboratory at the earliest opportunity to preserve the integrity of the sample. There are some samples which require special handling after collection e.g. some samples which need to be brought to the laboratory immediately, some which need to be kept at 37°C, some which need to be transported on ice and some which need to be kept in the dark (samples covered with aluminium foil). All of the sample collection criteria are available in Appendix 2 – Laboratory Test repertoire.

The Spire Healthcare transport policy (WM02) is available on the clinical intranet. A guide to ordering external courier can be found here:

https://citysprint.my.salesforce-sites.com/l?id=diFcb

9.1 Classification of infectious substances for transportation

For the purpose of transportation Infectious substances are defined by the WHO and divided for the purpose of transport in to two categories, Infectious substances category A and infectious substances category B.

- **Infectious substances category A** – An infectious substance which is transported in a form that, when exposure to it occurs, it is capable of causing permanent disability, life threatening or fatal disease in otherwise healthy individuals. Should Category A infectious substances be isolated (e.g. Mycobacterium tuberculosis, Shigella dysenteriae type 1) they are immediately transported to a referral laboratory where any further work will be carried out.
- **Infectious substances category B** – An infectious sample which does not meet the criteria for inclusion in category A is assigned to category B. This category is assigned by the WHO to UN3373 Biological Substance category B. All specimens transported by Spire Laboratory Medicine departments are treated in this category.

9.2 Packaging and labelling for transport

The transport of all pathology specimens external to the hospital requires triple packaging which consists of three layers. Patient confidentiality must always be maintained.

- Primary container – a labelled primary watertight, leak-proof specific container, which holds the specimen e.g., blood tube, histology pot, microbiology swab etc.
- Secondary receptacle – a secondary watertight, leak-proof container to protect the primary specimen, usually in the form of a biohazard bag attached to the request form, a snap-lock plastic bag or a further screw lid container. Several primary specimens may be placed in a single secondary receptacle providing sufficient additional absorbent material is used to absorb all fluid if there is a breakage.
- Outer packaging – Secondary receptacles are placed in an outer package of adequate strength and size which must have a secure locking mechanism. Outer packaging is intended to protect the contents from physical damage during transit. The outer package must be labelled with the UN3373 BIOLOGICAL SUBSTANCE CATEGORY B labelling system.
- The outer packaging must be clearly labelled with the destination and also with the name and address of the sending laboratory.
- If a referral laboratory receives specimens which have not satisfied the packaging requirements above or the sample has been incorrectly packaged which has compromised the integrity of the sample and /or the safety of the carrier, the general public and the laboratory staff. The sender shall be contacted immediately and informed about the measures to be taken to eliminate recurrence. The incident shall be reported as an adverse incident on Datix
- Ensure that urgent samples are not held for the next transport run but are sent straight away via another method, agreed locally

9.3 Pneumatic tube system

Some Spire hospitals have a pneumatic tube system installed which is used for the transport of specimens. Samples that are double packed as above and placed in the pneumatic air tube are considered to be triple packed. It is recommended that certain samples should not be sent using the pneumatic air tube system.

- If the specimen is irreplaceable e.g., CSF samples
- The specimen is in a glass container (Blood Cultures, ESR etc)
- The specimen is in a container that contains a fluid that is unsuitable e.g., histology specimens in formalin solutions.

10.0 Patient consent & sharing of information

Consent is required from a patient regardless of the treatment, which includes blood tests. The principle of consent is an important part of medical ethics and the international human rights law. For consent to be valid, it must be voluntary and informed, and the person consenting must have the capacity to make the decision.

Consent should be given to the healthcare professional directly responsible for the person's current treatment, such as the nurse arranging a blood test, or the surgeon planning an operation. Tacit consent can be inferred when a patient presents with a request form and submits to the procedure.

Consent may also be given:

- verbally
- non-verbally, for example, raising a hand to indicate they are happy for a nurse to take a blood sample.
- In writing, by signing a Spire Healthcare consent form (Spire Policy Clin78 Appendix 2a, b or c).

It may be appropriate to disclose clinical information and family history to relevant healthcare professionals, where referral is needed which relies on the information given for diagnosis (e.g. for interpreting genetic examination results).

Note: Patient samples or material may be anonymised and used internally for the purpose of quality control, this may include verification of instrumentation.

When the laboratory is required by law or authorized by contractual arrangements to release confidential information, the patient concerned shall be notified of the information released, unless prohibited by law.

Information about the patient from a source other than the patient (e.g. complainant, regulator) shall be kept confidential by the laboratory. The identity of the source shall be kept confidential by the laboratory and shall not be shared with the patient, unless agreed by the source.

11.0 Instructions for the preparation of the patient

Instructions must be given to the patient by the requesting clinician or healthcare professional if the sample to be collected requires that the patient meets certain pre-collection criteria, e.g., fasting for 16 hours, medication status or sample collection at a pre-determined interval. The information must be documented on the request form to ensure the information is available to the phlebotomist or healthcare professional. It is the responsibility of the phlebotomist or healthcare professional to question the patient and to document the time of collection on the request form.
Some criteria are defined in the patient information leaflets. See appendix 3.

12.0 Instructions for patient-collected samples.

Patient information leaflets are available on the Spire Healthcare Intranet. They can be found in the Clinical Specialities section of the Clinical Intranet under the Pathology heading.
Leaflets available include:
Ref: SPS-GP-WI1401 – 24-hour urine collection
Ref: SPS-GP-WI1403 – Random urine collection
Ref: SPS-GP-WI1404 – Diet sheet for urinary 5-HIAA
Ref: SPS-GP-WI1405 – Diet sheet for urinary Metadrenaline / Metanephrine (Catecholamine/VMA) collection
Ref: SPS-GP-WI1407 – Collection of faecal samples for routine culture
Ref: SPS-GP-WI1428 – Urine Cytology Collection

Examples of these can be found in appendix 3. Copies can be obtained from any Spire Pathology laboratory and are available on the Clinical Intranet.

12.1 Instructions for the collection of samples for specialist tests.

Instructions for the collection of samples which detail the criteria of when and how samples are taken can also be found on the Spire Healthcare Clinical Intranet as above. Instructions include:
Ref: SPS-GP-WI1408 – Glucose Tolerance Test procedure (GTT)
Ref: SPS-GP-WI1409 – Growth Hormone Suppression test
Ref: SPS-GP-WI1410 – Short Synacthen test
Ref: SPS-GP-WI1420 – Histology Sample Preparation

Examples of these can be found in appendix 3. Copies can be obtained from any Spire Laboratory Medicine departments and are available on the Clinical Intranet

13.0 Specimen rejection criteria

Unlabelled samples will be rejected and those samples that do not have the essential points of ID as described in 8.0 above will also be rejected. Clinical staff will not be permitted to label samples retrospectively and the responsibility for ensuring that patient's samples are labelled satisfactorily always lies with the requesting clinician. Histopathology and cytology samples and some microbiology samples may be an exception due to the difficult nature of taking additional samples. Rejection of incorrectly labelled specimens can only be authorised with the consent of the respective consultant; however, the discrepancy will be noted on the specimen report.

Clotted EDTA samples are unsuitable for testing as are under filled or overfilled citrate samples for ESR and coagulation tests. Haemolysed SST samples for Biochemistry will affect some of the analytes.
Some samples will deteriorate over time therefore should be sent to the laboratory without delay.
Some samples may require the addition of preservatives, please refer to the test index or contact a laboratory for further information.
Samples which need to be posted to the laboratory should be packaged carefully to prevent leakage/breakage and must follow the appropriate postal regulations. Contact a laboratory for details.
Some tests require samples to be frozen. See test index. Contact laboratory for advice.
Requesting clinicians or their secretaries will be notified if the specimen has not been accepted due to the above criteria. It is therefore essential that the request forms contain the relevant contact information. Local arrangements may be in place for the phlebotomists to recall the patient for further sampling.

Spire Laboratory Medicine operates a zero tolerance for incorrect or incompletely labelled samples. They will be disposed of, and a further sample requested. In order to maintain patient safety, colleagues receiving samples follow a standard set of acceptance requirements, should they not be met samples are rejected and a Datix will be raised with the head of the requesting department as the handler.

If the sample cannot be repeated (precious samples e.g., tissue, CSF) amendment will be allowed and sample will not be rejected. Specimens return form SPS-GP-F1401 will be completed by both parties and the sample accepted into the laboratory.
If the sample is received from an external client, the client will be informed.

14.0 Factors affecting sample results

14.1 Blood sample collection technique

To prevent haemolysis the venepuncture technique is important. It is advisable, if possible, to use median cubital vein as the preferred site, clean the site with an alcohol swab from the centre of the vein in circular motions working outwards away from the vein. Allow the alcohol to air dry. Apply a tourniquet above the venepuncture site for no longer than one minute. Prolonged torniquet time can lead to an increase in some analytes including protein, potassium and lactic acid due to haemostasis.

- Collection tubes must be in date. Expired tubes must not be used as they may have a decreased vacuum, as well as potential changes in any additive in the collection tube.
- Correct order of blood sample collection during venepuncture will ensure accurate results. The correct order of draw for plastic BD tubes is; Blood cultures, Citrate samples (blue), citrate sample for ESR (black), Serum samples (red) SST tubes (yellow), Heparin (green), EDTA (pink or purple) and Fluoride (grey).
- Correct specimen volume: All blood collection tubes need to be filled to the correct volume as marked on tube. This will ensure the proper amount of blood to anticoagulant in the collection tube. See SPS-GP-SOP2400 Guide to Phlebotomy. If unable to obtain blood to the line, consult the laboratory for minimum volume requirements.
- Proper tube mixing by inversion is essential in order to mix the additive evenly. Do not shake vigorously as this can cause haemolysis.

14.2 Pre-analytical variables – Microbiology

- Urine microbiology samples should be collected into a clean Boric acid container (acts as a preservative) with the lid tightly screwed on to prevent leakage.
- Use a midstream collection (MSU) which is less likely to contain contaminants than random urine. See Section 7 for taking sample and also patient information leaflet SPS-GP-WI1403.
- The collection should be aseptic to prevent contamination from skin and clothing.
- False negative results may be seen if patients are taking antibiotics.
- blood cultures must be sent to agreed testing laboratory within 4 hours of collection"
- Urine, swab and stool samples will be rejected by the laboratory if they are received more than 72 hours postproduction of sample.

14.3 Pre-analytical variables in urine testing-Biochemistry

- It is important that the total urine volume collected is recorded and the time period of collection in order to calculate the analyte concentrations.
- Sodium is influenced by diet. Antibiotics, cough medicines and laxatives can increase sodium results whereas diuretics decrease sodium results.
- Potassium can be influenced by diet. Diuretics, salicylates and glucocorticoids can increase potassium results.
- Chloride is falsely decreased by androgens, oestrogens, methyldopa or cortisone and increased by bicarbonates or corticosteroids.
- Creatinine is increased by gentamicin or heavy metal chemotherapy agents.
- Calcium is increased by antacids, anticonvulsants and some diuretics and decreased by adrenocorticosteroids and oral contraceptives.

- Total protein is affected by alcohol, anti-inflammatory drugs, salicylate and warfarin.
- Bilirubin can be increased with antibiotics, diuretics, oral contraceptives, sulfonamides and steroids and decreased by light and ascorbic acid.
- Amylase can be increased with aspirin, corticosteroids, codeine and oral contraceptives.
- 5-HIAA is influenced by many types of food (see patient information sheet). It is recommended that patients refrain from those listed for three days prior to sample collection.
- Porphyrins are affected by light, morphine, oral contraceptives and sulfonamides.
- Catecholamines are influenced by chocolate, cocoa, coffee, tea, bananas and vanilla. They are also affected by exercise and stress. They can be increased by lithium, insulin, tetracycline and nitroglycerine and decreased by salicylates and imipramine. These same factors also affect VMA, a metabolite of catecholamines.

14.4 Pre-analytical variables – Biochemistry

- Patient preparation: Certain analytes e.g. glucose or cholesterol require the patient to have fasted for 12 hours (no food or liquids with the exception of water) prior to sample collection.
- Cortisol and adrenocorticotropin have diurnal variations, where the analyte is at its highest level in the morning and decrease gradually throughout the course of the day
- Haemolysis can result in the spurious elevation of some analytes e.g., potassium, lactate dehydrogenase, iron, folate and magnesium.
- Faecal Elastase samples should not reach temperatures above 40°C in these situations recommend they are transported cooled or refrigerated.
- Use of NSAIDS can produce a mildly raised Faecal Calprotectin result.
- Haemolysis may significantly increase folate values due to high concentrations of folate in red blood cells. Therefore, haemolysed samples are not suitable for use in this assay.

The following tests may be added post phlebotomy as displayed in the timeframe below.

Glucose	3 days	CA 15-3	5 days	Pro BNP	6 days
LDH	4 days	Cortisol	4 days	Progesterone	5 days
Phosphate	4 days	Oestradiol	2 days	Parathyroid Hormone	2 days
Triglycerides	5 days	Folate	2 days	TPSA	5 days
Uric Acid	5 days	FPSA	5 days	Vitamin B12	2 days
CA 125	5 days	Insulin	2 days	Vitamin D	3 days RT, 7 days if separated and stored at 4 °C

14.5 Pre-analytical variables – Haematology and coagulation

- EDTA samples must be mixed by inverting gently 8-10 times to ensure the anticoagulant is mixed and the sample does not clot
- Ideally blood counts should be performed within 6 hrs of the venepuncture for optimum results, if a blood film is required it should preferably be made within 2 hours of sample collection.

- Under filled EDTA blood collection tubes can lead to erroneously low blood cell counts, haematocrits and morphological changes to RBCs, and staining alteration.
  White blood cell counts, and platelet counts can be affected by cryoglobulins.
- Cryoglobulins aggregate and may be falsely identified as platelets and/or WBCs by the haematology analyser. Cold agglutinins have been known to cause spurious reporting of macrocytosis and decreased RBC counts.
- Platelet satellitism is a phenomenon that only occurs in EDTA anticoagulated blood. This is due to EDTA-dependent IgG autoantibodies and occurs at room temperature. When platelet satellitism is present, there is a decrease in platelet count. In this instance a citrate sample maybe requested.
- Coagulation analysis should preferably be performed within 4 hours of collection. If this is not appropriate, the samples shall be double spun, separated from the red cells and the plasma frozen
- It is important to include any anticoagulant treatment when requesting coagulation studies as this will be needed for interpretation of results
- ESR samples collected into seditainer tubes must be tested within 4 hours of collection. If this is not possible an EDTA sample must be taken which if stored at 4°C is viable for 24hrs. The EDTA sample can be tipped into the seditainer tube for testing.

14.6 Pre-analytical variables – Blood transfusion

- For patients who have received a blood transfusion or who have been pregnant in the last 3 months serological studies should be performed using blood collected no more than 3 days in advance of the actual transfusion when the patient has been transfused or pregnant within the preceding 3months, or when such information is uncertain or unavailable. The 3 days includes the de-reservation period, e.g., if the sample was 1-day old, the blood would have to be transfused within 2 days.
- Requests for crossmatching may be added to the second Group and Save sample taken from a patient as the BCSH guidelines recommend that every attempt should be made to ensure that two separate samples have been fully grouped (forward and reverse groups) prior to transfusion of red cells.

14.7 Pre-analytical variables - Virology

- With most virology tests, samples collected during the acute phase of infection, when only IgM antibodies are present, may be negative for IgG testing. Further samples should be obtained 8 – 14 days later to determine an increase in the IgG antibody level
- Testing for VCA EBNA IgG can only be used as a guide as a diagnosis and must always be evaluated together with results of other diagnostic procedures. There is a possibility of cross reaction with samples containing E. coli antibodies.

14.8 Pre-analytical variables – Immunology

- Rheumatoid factor can interfere with the determination of IgM anti-Cardiolipin antibodies. It may also interfere with the determination of MPO antibodies
- In rare cases interference of the Scl-70 and Smd tests can occur due to extremely high titres of streptavidin.

14.9 Pre-analytical variables – Histology

- Fixation in 10 % neutral buffered formalin is a critical step in the preparation of histological sections. If it is not carried out under optimal conditions or if fixation is delayed, a tissue specimen can be irreversibly damaged. Routine tissue samples undergo fixation within 24 hours from the sampling time, larger specimens e.g., resection specimens or those that require slicing must be fixed for a further 24 hours (48 hours in total)
- Samples must be placed in sufficiently large containers to ensure the sample is completely submerged in 10% neutral buffered formalin. Container should be large enough so the sample can move freely within it in order to prevent damage and preserve the integrity of the tissue. See Appendix 3
- Fresh tissue for frozen section to be supplied in a sterile container labelled with patient details stipulated in section 8.0. Sample must be transported to pathology without delay & must have an accompanying completed histology/cytology pathology request form.

14.10 Pre-analytical variables – Cytopathology

14.10.1 Non-gynaecological samples

Urine Cytology

- For Urine Cytology requests when the specimen is collected off site, patients will be supplied with a unisex specimen container called "URICYTE+ BASIC KIT 120ml – FOR BLADDER CYTOLOGY" that holds 120 mls (Manufacturer CellPath Ltd) and the patient information sheet.
- Fresh Urine Cytology samples that are collected on site can be received in universal containers following guidance below.
- The first voiding of the day is unsuitable for cytological examination. A mid-morning or random specimen is recommended for urine cytology. After a small quantity of the initial urine flow is released into the toilet, fill the specimen container containing the UriCyte preservative until the container is 2/3 to 3/4 full.
- The container and Pathology request form should be placed in the specimen bag provided.
- Pass the firmly closed urine container and the request form to the responsible medical person as soon as possible.

Aspirates

- Fluid samples should be taken into either a sterile universal container or a container containing Cytolyte.
- Fluid aspirate samples taken directly onto slides are not acceptable and should be taken into Cytolyte.

Body cavity fluids

- These should be taken into a while-topped universal container. If not sent on the same day these should be refrigerated at 2-8 degrees

14.10.2 Cervical cytology

- The test can only be performed by trained sample takers using the Thinprep PAP test based Cytology (LBC) system.
- Specimen collection is a key factor in obtaining adequate and representative samples for analysis. Therefore, when collecting specimens, it is important to use appropriate devices and techniques, such as avoiding the use of lubricants, or if they are used, using them sparingly.
- The Broom-Like device protocol is the recommended method of collection available at Spire Hospitals. See work instruction SPS-GP-WI1422 (Appendix 5)

14.11 Risk Assessment

Spire Laboratory Medicine have considered the risks which affect the patient in the pre-analytical, analytical and post-analytical phases and these are documented as below.
Please contact spirehealthcarepathologyqualityteam@spirehealthcare.com for further information of risk if required.

APPENDIX 3: SPIRE HEALTHCARE - RISK ASSESSMENT FORM (RAF1); Clinical

TO BE USED WITH APPENDIX 1 OF FIN03

A. Hospital/Unit	Pathology			Dept.	All Laboratories		Ref No	SPS-GP-RA0027
B. Assessment performed by	Quality Management Team			Date	21.06.2023	HOD name	Fiona McLeman	Date approved	21.06.2023
Subsequent reviews	Date	16.08.2023	By (name)	Fiona McLeman		Date	31.12.2024	By (name)	Fiona McLeman
	Date	19.02.2025	By (name)	Fiona McLeman		Date		By (name)	

C. What is the hazard or hazardous task?

1. Specimens are not taken correctly from the patient
   a. Incorrect venepuncture technique resulting in haemolysis
   b. Incorrect post venepuncture management resulting in clotting or haemolysis
   c. Wrong sample container selected resulting in incorrect result or sample rejection
   d. Incorrect storage prior to transport resulting in incorrect results
   e. Sample containers are mis-labelled resulting in rejection
   f. Sample containers are labelled with another patient ID resulting in Wrong Blood (or sample) in tube event, causing patient to have a mis-diagnosis
   g. Specimen container underfilled – resulting in incorrect results or sample rejection
   h. Sample container used past expiry date – resulting in incorrect results or sample rejection
   j. Incorrect sample container or preservative used - resulting in incorrect results or sample rejection
2. Specimens are not transported correctly to the testing laboratory
   a. Samples may leak in transit - resulting in incorrect results or sample rejection and risk to colleagues
   b. Samples not packaged correctly - resulting risk to colleagues
   c. There is no electronic sample tracking facility – resulting in lost samples
   d. There is no sample temperature monitoring for samples in transit – samples may be unknowingly out of stability and deliver inaccurate results
   e. Transport colleagues or third-party drivers may have no training or competency to transport samples resulting in the samples not being handled correctly and inaccurate results

Risk rating

Likelihood	Neg ☐	Minor ☒	Mod ☐	Major ☐	Catastrophic ☐
Almost certain ☒	L	M	H	H	H
Likely ☐	L	M	M	H	H
Possible ☐	L	L	M	M	H
Unlikely ☐	L	L	L	M	M
Rare ☐	L	L	L	L	L
	Low	Medium			High

D. What is the likely harm or loss?
Unavailability of results due to pre-analytical errors and/or having to attend for a retake of sample

F. Risk before controls	Medium	H. Risk after controls	Low

E. Who may be harmed? Staff ☐ Patients ☒ Contractors ☐ Visitors/public ☐ Young workers ☐ Trainees ☐ Others (specify)

G. What controls are in place to reduce the risk? Consider in order; elimination, substitution, isolation, engineering/re-design, training, PPE.

1. Pathology User guide
2. Guide to phlebotomy
3. Working instructions available on clinical Intranet including: use of the centrifuge, Histology sample preparation, urine cytology collection & transportation of specimens
4. Ordercoms (with sample taking instructions) – users guide on clinical intranet
5. Haemolysis report for Director of Clinical Service
6. Communication of rejected sample as per SPS-GP-SOP1400
7. Incident reporting via Datix
8. Spire clinical competencies for sample taking
9. Pre-analytical training delivered to Pre-Assessment leads, DoCS, ward managers and out-patient leads
10. Transportation policy (WM02) including driver competencies
11. QI package and information disseminated via Ops comms to all sites
12. SLA with City Sprint which gives assurance around driver competency

APPENDIX 3: SPIRE HEALTHCARE - RISK ASSESSMENT FORM (RAF1) ; Clinical

TO BE USED WITH APPENDIX 1 OF FIN03

A. Hospital/Unit	Pathology			Dept	All Laboratories			Ref No	SPS-GP-RA0028
B. Assessment performed by	Quality Management Team			Date	21.06.2023	HOD name	Fiona McLeman	Date approved	21.06.2023
Subsequent reviews	Date	16.08.2023	By (name)	Fiona McLeman		Date	31.11.2024	By (name)	Fiona McLeman
	Date		By (name)			Date		By (name)	

C. What is the hazard or hazardous task?
Risks to patient safety and satisfaction related to analytical activities.

D. What is the likely harm or loss?
Incorrect results leading to incorrect or inappropriate treatment, and/ or miss-diagnosis

Risk rating

Likelihood	Neg ☐	Minor ☒	Mod ☐	Major ☐	Catastrophic ☐
Almost certain ☒	L	M	H	H	H
Likely ☐	L	M	M	H	H
Possible ☐	L	L	M	M	H
Unlikely ☐	L	L	L	M	M
Rare ☐	L	L	L	L	L
	Low	Medium			High

F. Risk before controls Medium **H. Risk after controls** Low

E. Who may be harmed? Staff ☒ Patients ☒ Contractors ☐ Visitors/public ☐ Young workers ☐ Trainees ☐ Others (specify)

G. What controls are in place to reduce the risk? Consider in order; elimination, substitution, isolation, engineering/re-design, training, PPE.

1. Target operating model in place for staffing and skill mix across all sites
2. Standard Operating procedures for all analytical platforms including operation & maintenance
3. Standard Training and Competency documentation for all analytical tests & processes performed within Spire Pathology
4. Analytical tests are covered by Internal Quality Controls and External Quality assurance, which are trended monthly, those which are not covered are individually risk assessed.
5. External Quality assurance reviewed monthly at Pathology Governance and by Discipline consultants at each site
6. Support structure in place; Pathology SMT, Pathology Quality Team and Discipline groups.
7. Clinically led service with regular documented meetings with Discipline consultants at each site
8. Scope of practice at each site is audited annually
9. All sites are UKAS accredited and MHRA compliant
10. All Datix events raised are reviewed monthly and discussed at Pathology Governance meetings
11. Ordercoms for electronic ordering
12. BCP in place at all sites and nationally.
13. Annual re-verification
14. Maintenance contracts in place
15. Supplier review meetings
16. BCP and Major Haemorrhage scenarios performed annually
17. Staff receive spills training and there is an associated work instruction
18. Interfaces between instrumentation and WinPath Enterprise act as a holding mechanism to prevent incorrect results release

H. What further actions are required to control the risk? Please specify target completion dates

	Target date	Action	Target date

I. SSD Risk Assessments only

Has risk been reduced as far as possible? (Low or Very Low Risk Rating following application of control measures)

Yes ☐ **No** ☐

APPENDIX 3: SPIRE HEALTHCARE - RISK ASSESSMENT FORM (RAF1) ; Clinical

TO BE USED WITH APPENDIX 1 OF FIN03

A. Hospital/Unit	Pathology			Dept.	All Laboratories			Ref No	SPS-GP-RA0029
B. Assessment performed by	Quality Management Team			Date	21.06.2023	HOD name	Fiona McLeman	Date approved	21.06.2023
Subsequent reviews	Date	16.08.2023	By (name)	Fiona McLeman		Date		By (name)	
	Date		By (name)			Date		By (name)	

C. What is the hazard or hazardous task?
Risks to patient safety and satisfaction related to post-analytical activities.
Risk to consultant satisfaction due to post-analytical activities

D. What is the likely harm or loss?
Results not being available when required
Urgent results not being actioned as and when required

Risk rating

Likelihood	Neg ☐	Minor ☒	Mod ☐	Major ☐	Catastrophic ☐
Almost certain ☒	L	M	H	H	H
Likely ☐	L	M	M	H	H
Possible ☐	L	L	M	M	H
Unlikely ☐	L	L	L	M	M
Rare ☐	L	L	L	L	L
	Low	Medium			High

F. Risk before controls Medium **H. Risk after controls** Low

E. Who may be harmed? Staff ☐ Patients ☒ Contractors ☐ Visitors/public ☐ Young workers ☐ Trainees ☐ Others (specify)

G. What controls are in place to reduce the risk? Consider in order; elimination, substitution, isolation, engineering/re-design, training, PPE.

1. Standard operating procedures in place for Pathology LIMS system & Post analytical procedures
2. Standard Training and Competency documentation
3. All test requests are entered onto the Pathology LIMS system and available electronically to consultants
4. Abnormal results requiring escalation/communication are held in LIMS for action by a BMS
5. Results can be referred within the LIMS for consultant review &/or comment.
6. LIMS audit trail for telephoning results in place
7. Support structure in place; Pathology SMT, Pathology Quality Team and Discipline
8. All Datix events raised are reviewed monthly and discussed at Pathology Governance meetings
9. Consultant Handbook available (MED 02)
10. Practicing privileges policy (MED 03)
11. Communication of abnormal or unexpected histology results (CLINI 95)
12. Surveillance for HCI organisms Policy (CLINI 83)

H. What further actions are required to control the risk? Please specify target completion dates

	Target date	Action	Target date

I. SSD Risk Assessments only

Has risk been reduced as far as possible? (Low or Very Low Risk Rating following application of control measures)

Yes ☒ **No** ☐

15.0 Clinical Advice

Spire Laboratory Medicine departments have consultant advisors for each discipline. Each Consultant has signed a service level agreement and shall provide evidence on an annual basis to assure the Pathology Manager and Hospital Senior Management team that they remain competent for the applicable scope of practice within the department they are working in.
The names of the Consultants for each laboratory are documented in section 2.4
The scope of their responsibilities includes

- Available to give professional judgments on interpretation of results.
  - In Histopathology, the interpretative comments based on observations constitute the professional judgment of the Consultant Histopathologist's that is the basis of the report.
  - In other disciplines interpretative comments are added to reports to aid clinicians.
- Available to offer clinical advice. Their contact details are available at the relevant Spire Laboratory Medicine department
- To promote the effective utilization of the laboratory services
- To be involved in consultation on scientific and logistic matters such as sample suitability.

16.0 Protection of Personal Information

Confidentiality of medical information relies on access to information being made only by those who have legitimate reasons to do so, as part of that person's medical care.
Breaches of confidentiality are contrary to the General Data Protection Regulation and are considered disciplinary offences by Spire Healthcare.

The laboratory is responsible, through legally enforceable agreements, for the management of all patient information obtained or created during the performance of laboratory activities. Management of patient information includes privacy and confidentiality. The laboratory will inform the user and/or the patient in advance, of the information it intends to place in the public domain. Except for information that the user and/or the patient makes publicly available, or when agreed between the laboratory and the patient (e.g., for the purpose of responding to complaints), all other information is considered proprietary information and shall be regarded as confidential.

Personnel, including any committee members, contractors, personnel of external bodies, or individuals with access to laboratory information acting on the laboratory's behalf, shall keep confidential all information obtained or created during the performance of laboratory activities.

17.0 Complaint Procedure

Spire Laboratory Medicine abides by the Spire Healthcare Complaints Policy (HOP2) The purpose of this policy (which is based on the Independent Sector Complaints Adjudication Service Members Code of Practice for Managing Complaints, May 2013('ISCAS Code')) is to establish a clear framework within which complaints will be managed by Spire Healthcare. Co-operation with the ISCAS Code is a condition of Spire Healthcare's membership of ISCAS.

Complaints should be directed to the local Pathology Manager or Hospital Director. Written complaints are dealt with in a timely manner. A written acknowledgement must ordinarily be made within 2 working days of receipt of the complaint (unless a full reply can be sent within 5 working

days). A full response will normally be made within 20 working days of receipt of the complaint. Where the investigation is still in progress, a letter explaining the reason for the delay must be sent to the patient and a full response made within 5 working days of completion of the investigation.

18.0 Measurement Uncertainty and Biological variance

Measurement Uncertainty and Biological variance (Biochemistry only) for each measured parameter is available on request.

19.0 Turnaround Times

Stated turnaround times are measured from time received into the testing laboratory in working days. It should be noted that some samples are received as postal samples and therefore turnaround time may be elongated due to this process.

20.0 Customer Information

Users of Spire Laboratory Medicine services may obtain information on the cost of tests to patients from the local hospital Financial Directors or Business administration teams. If this information is required, it should be sought prior to having any tests undertaken.
Assistance may also be sought by hospital teams from the Laboratory Medicine Business Service team at Laboratorymedicine@spirehealthcare.com in relation to test codes.

Appendix 1 – Tests offered by Spire Laboratory Medicine

	Bristol	Centennial Park	Dunedin	Edinburgh	Hartswood	Hull	Leeds	Leicester	Little Aston	Manchester	Montefiore	Nottingham	Parkway	Portsmouth	Southampton	St Anthonys	Washington	Histology Centre
Biochemistry																		
AFP		x								x								
AKI staging		x		x	x		x			x	x	x	x		x			
AMH										x								
Amylase	x	x		x	x		x			x	x	x	x		x	x		
Angiotensin converting enzyme (ACE)		x																
Apolipoprotein A										x								
Apolipoprotein B										x								
Aspartate Aminotransferase (AST)		x		x			x			x								
Bicarbonate		x								x								
Bone	x	x		x	x		x			x		x	x		x	x		
C125	x	x		x	x		x			x		x	x		x	x		
C153		x								x								
C199		x								x								
Calcium / Calcium (adjusted)	x	x		x	x		x			x	x	x	x		x	x		
CEA	x	x		x	x		x			x		x	x		x	x		
Chloride		x								x					x			
Cortisol		x																
Creatinine Kinase	x	x		x	x		x			x	x	x	x		x	x		
CRP	x	x		x	x		x			x	x	x	x		x	x		
Direct Bilirubin		x																
eGFR	x	x		x	x		x			x	x	x	x		x	x		
Faecal Calprotectin										x								
Faecal Elastase										x								
Faecal immunochemical testing										x								
Ferritin	x	x		x	x		x			x		x	x		x	x		
Fibrosis-4	x	x		x	x		x			x		x	x		x	x		
Free Androgen Index		x																
Folate	x	x		x	x		x			x		x	x		x	x		
FPSA	x	x		x	x		x			x		x	x		x	x		
Free calculated testosterone		x																
Free/total PSA Ratio		x																
FSH		x								x								
FT3		x																

	Bristol	Centennial Park	Dunedin	Edinburgh	Hartswood	Hull	Leeds	Leicester	Little Aston	Manchester	Montefiore	Nottingham	Parkway	Portsmouth	Southampton	St Anthonys	Washington	Histology Centre
FT4	x	x		x	x		x			x		x	x		x	x		
Gentamicin		x																
Globulin	x	x		x	x		x			x	x	x	x		x	x		
Glucose	x	x		x	x		x			x	x	x	x		x	x		
HbA1c		x								x								
HCG- beta		x																
IgA		x																
IgG		x																
IgM		x																
Immunofixation		x																
Insulin		x																
Iron and TIBC		x								x								
Lactate													x					
LDH		x		x			x			x	x	x	x		x			
LH		x								x								
Lipid (Chol, Tri/HDL)	x	x		x	x		x			x	x	x	x		x	x		
Lipoprotein a										x								
Lithium										x								
Liver function tests	x	x		x	x		x			x	x	x	x		x	x		
Low Density Lipoprotein Cholesterol (LDL)	x	x		x	x		x			x	x	x	x		x	x		
Magnesium	x	x		x	x		x			x	x	x	x		x	x		
non-HDL Cholesterol		x		x	x		x			x	x	x	x		x			
Oestradiol		x								x								
Paracetamol										x								
Phosphate	x	x		x	x		x			x	x	x	x		x	x		
proBNP		x																
Progesterone		x																
Prolactin		x								x								
Protein electrophoresis		x																
PSA	x	x		x	x		x			x		x	x		x	x		
PTH	x	x			x		x			x			x		x	x		
Salicylate										x								
SHBG		x																
Testosterone		x																
Transferrin saturation		x																
Troponin T	x	x			x					x		x				x		
TSH	x	x		x	x		x			x		x	x		x	x		
Urate	x	x		x	x		x			x	x	x	x		x	x		
Urea and Electrolytes	x	x		x	x		x			x	x	x	x		x	x		

	Bristol	Centennial Park	Dunedin	Edinburgh	Hartswood	Hull	Leeds	Leicester	Little Aston	Manchester	Montefiore	Nottingham	Parkway	Portsmouth	Southampton	St Anthonys	Washington	Histology Centre
Urine Amylase		x																
Urine Calcium		x																
Urine Calcium / Creatinine Ratio		x																
Urine Calcium / Creatinine Clearance Ratio		x																
Urine 24 hour Creatinine Clearance		x																
Urine Chloride		x																
Urine Creatinine		x																
Urine Glucose		x																
Urine Magnesium		x																
Urine Phosphate		x																
Urine Potassium		x																
Urine Protein		x																
Urine Protein / Creatinine Ratio		x																
Urine Total Protein		x																
Urine Sodium		x																
Urine Urea		x																
Urine Uric Acid		x																
Valproate										x								
Vitamin B12	x	x		x	x		x			x		x	x		x	x		
Haematology																		
Activated Partial Thromboplastin Ratio (APTR)															x			
Activated partial thromboplastin time (APTT)	x	x		x	x		x			x		x	x		x	x		
Blood Films	x	x		x	x		x					x	x		x	x		
D Dimer		x			x					x						x		
ESR	x	x		x	x		x			x	x	x	x		x	x		
Fibrinogen										x		x				x		
Full Blood Count	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
International Normalised Ratio (INR)	x	x		x	x		x			x		x	x		x	x		
Prothrombin time (PT)	x	x		x	x		x			x		x	x		x	x		
Reticulocytes		x																
Microbiology																		
Blood culture screening		x		x			x			x		x			x	x		
C Difficile GDH A/B		x								x								
Chlamydia PCR		x								x								
Clinical bacteriology (NOT incl. Category 3 organisms)		x								x								

	Bristol	Centennial Park	Dunedin	Edinburgh	Hartswood	Hull	Leeds	Leicester	Little Aston	Manchester	Montefiore	Nottingham	Parkway	Portsmouth	Southampton	St Anthonys	Washington	Histology Centre
CMV IgG/ IgM										x								
Epstein-Barr Virus (EBV) viral capsid antigen (VCA) IgG										x								
Epstein-Barr Virus (EBV) viral capsid antigen (VCA) IgM										x								
Epstein-Barr Virus Nuclear Antigen (EBNA)										x								
Faecal Helicobacter Antigen										x								
Gonorrhoea PCR		x								x								
Hep A IgM										x								
Hep B Ab										x								
Hep B S Ag										x								
Hep C Ab										x								
Hepatitis B Core Total Antibody										x								
HIV Ag and Ab										x								
HSV type I IgG										x								
HSV type II IgG										x								
Measles IgG										x								
CPE bacterial screening		x								x								
MRSA Screening		x								x								
Mumps IgG										x								
Mycology										x								
Parasitology		x								x								
Rubella IgG										x								
SARS-CoV-2 (N1 and N2) Influenza A and Influenza B Human Respiratory Syncytial Virus A/B (RSV)		x								x								
Syphilis IgG/IgM										x								
TB Quantiferon										x								
Toxoplasma IgG / IgM										x								
Trichomonas PCR		x								x								
Varicella Zoster IgG										x								
Blood Transfusion																		
Antibody Identification	x			x	x		x			x		x			x	x		
Antibody Screens	x	x		x	x		x			x		x	x		x	x		
Blood Groups	x	x		x	x		x			x		x	x		x	x		
Crossmatching	x	x		x	x		x			x		x	x		x	x		
Cellular Pathology																		
Histology H&E																		x

	Bristol	Centennial Park	Dunedin	Edinburgh	Hartswood	Hull	Leeds	Leicester	Little Aston	Manchester	Montefiore	Nottingham	Parkway	Portsmouth	Southampton	St Anthonys	Washington	Histology Centre
Immunohisto-chemistry																		x
Non Gynae Cytology																		x
Special stains																		x

Appendix 2 – Test Repertoire

Key to Vacutainers

Vacutainer	Anticoagulant	Capacity	Sample Types
Lavender	EDTA	4ml	●
Gold	SST/Gel	3.5ml, 5ml	●
Blue	Citrate	4.5ml	●
Red	None	6ml	●
Black	Sodium Citrate	5 ml	●
Green	Lithium heparin	6ml	●
Pink	EDTA	6ml	●
Grey	Fluoride oxalate	2ml	●

Paediatric age definitions: Neonate < 4 weeks, Infant 4 weeks to 1 year. Child 1 to 16 years

Location of testing – some will be site dependant

IH – Most Spire laboratories will carry out this testing on-site

SR – These tests are carried out within Spire Laboratory Medicine

EXT – These tests are generally referred out of the Spire Network and the location of testing performed will be indicated on the final report. Any tests which are sent externally may have an extended turnaround time.

Description	Sample	Notes / Instruction Ref	TAT	Reference Range		Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
A							
Adrenocorticotrophic hormone (ACTH)	●	52	14 days	< 46 @ 09:00 am		ng/L	EXT
AKI	● or ●		4 hrs	See report for interpretation			IH
Albumin	● or ●		4 hrs	Adult	35 - 50	g/L	IH
				Neonate	30 – 45		
				Infant 1 – 16 yrs	30 – 45 30 - 50		
Alkaline Phosphatase (ALP)	● or ●		4 hrs	Adult	30 - 130	IU/L	IH
				Neonate	70 - 380		
				Infant – 16 yrs	60 - 425		

Description	Sample	Notes / Instruction Ref	TAT	Reference Range		Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
Allergy Screen (See Total and Specific IgE)	🟡	33					EXT
Alpha 1 Anti-trypsin (Faeces)	Solid Stool	1, 2, 3	14 days	See report			EXT
Alpha 1 Anti-trypsin Genotype (S and Z variant)	🟣	4	45 days	See Report			EXT
Alpha 1 Anti-trypsin Phenotype	🟡	4	16 days	See Report			EXT
Alpha 1 Anti-trypsin (serum)	🟡	4	5 days	Adults	1.1 - 2.1	g/L	EXT
				Children	Age related – see report		
Alpha Feto Protein (AFP)	🟡		2 days	0 - 5.8		KU/L	SR
Alanine Aminotransferase (ALT)	🟡 or 🟢	68	4 hrs	See Report		IU/L	IH
Amylase	🟡 or 🟢		4 hrs	28 - 100		IU/L	IH
Amylase (Fluid)	Fluid	5	2 days	See Report		IU/L	SR
Amylase (Urine)	Random Urine	5	2 days	See report		U/L	SR
Angiotensin Converting Enzyme	🟡		2 days	Up to age 17	29 - 112	U/L	SR
				Adult	20 - 70		
Antibody identification (blood transfusion)	🩷 x2		Depends on nature of antibodies, may indicate need for referral	N/A		N/A	IH/ SR/EXT
Anti DNA	🟡		10 days	Negative <10 Equivocal 10 - 15 Positive >15		IU/mL	EXT
Anti Extractable Nuclear Antibodies (Anti ENA) (includes Anti-Jo-1,La,RNP,Ro,Scl-70 and Sm Antibodies)	🟡		5 days	Screen negative: Negative Screen positive or equivocal : individual antigens will be tested separately			EXT
Anti Mullerian Hormone	🟡		3 days	See report		pmol/L	SR
Anti Neutrophil Cytoplasmic Antibodies (ANCA)	🟡		4 days	**MPO** Negative <3.5 Equivocal 3.5 - 5.0 Positive >5.0 **PR3** Negative <2.0 Equivocal 2.0 - 3.0 Positive >3.0		IU/mL	EXT
Antinuclear Antibodies(ANA)	🟡		7 days	Positive/Negative/ Cytoplasmic staining seen. If positive, titre is reflexed - reported as titre and pattern			EXT
Anti Streptolysin O Titre	🟡		4 days	See report			EXT

Description	Sample	Notes / Instruction Ref	TAT	Reference Range	Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
Apolipoprotein A	🟡	Stable for up to 8 hours at RT 8-48hrs – refrigerated >48 hrs require freezing	2 days	Male > 1.0 Female >1.0	g/L	SR
Apolipoprotein B	🟡		2 days	Male 0.65 – 1.30 Female 0.60 – 1.20	g/L	SR
APTT	🔵	1, 7, 8, 59	4 hrs	See report	secs	IH
Aspartate Transaminase (AST)	🟡 or 🟢	68	4 hrs	See report	IU/L	IH
Autoimmune Antibody Screen	🟡		9 days	Positive/Negative If Positive for smooth muscle or mitochondrial antibodies - reflex test. These reflex tests are reported as a titre.		EXT
B						
Bordatella pertussis culture (Whooping cough)	Pernasal swab (contact lab)	64	12 days			EXT
Borrelia Burgdorferi Antibodies (Lyme disease)	🟡	9, 10	8 days (Confirmatory test 21 days)	See Report		EXT
Bence Jones Protein	Fresh Early Morning Urine in white top container	5	7 days	Qualitative. Please note urinary free light chain quantification is not available. Please request serum free light chain quantification instead.		EXT
Beta HCG	🟡		2 days	0 -5	IU/L	SR
Bicarbonate	🟡		2 days	Neonate 19 - 28 Child 19 - 28 Adult 22 - 29	mmol/L	SR / IH
Bile culture	Bile	5	2-4 days			IH
Bilirubin (Total)	🟡 or 🟢		4 hrs	Age range: from 14 days < 21	µmol/L	IH
Blood Culture	IH *Set of 1x aerobic and 1x anaerobic BD Bactec blood culture bottles	1,11	Up to 7 days	Not applicable		IH/EXT/SR
Blood Culture (septic patient)	2 x anaerobic and 2 x aerobic bottles	1,11	Up to 7 days	Not applicable		IH/EXT/SR
Blood Films	🟣		Contact local laboratory	Not applicable		IH/EXT
Blood Group (ABO/Rh)	🩷	12	1 - 2 days	Not applicable		IH/SR/EXT
Blood Group and antibody screen	🩷	12	1 – 2 days	Not applicable		IH/SR/EXT
Bone profile	🟡 or 🟢		4 hrs	See Report		IH
Bordetella Pertussis Antibodies	🟡	9, 10	7 days	Not applicable		EXT

Description	Sample	Notes / Instruction Ref	TAT	Reference Range	Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
Bronchial Washing/BAL/NPA for Culture	Bronchial Washings	5	2-4 days	Not applicable		IH/SR
Bronchial Washing for TB Culture	Bronchial Washing	5	Microscopy 48 hours Final 6 Weeks	Not applicable		EXT
C						
C Reactive Protein (CRP)	🟡 or 🟢		4 hrs	0 - 5	mg/L	IH
CA 125	🟡	56	2 days	<35	kU/L	SR
CA 15-3	🟡	56	2 days	<26.4	kU/L	SR
CA 19-9	🟡		2 days	<27	kU/L	SR
Caeruloplasmin	🔴		9 days	0.2 - 0.6	g/L	EXT
Calcium (Adjusted)	🟡 or 🟢	Avoid venestasis	4 hrs	2.2 - 2.6	mmol/L	IH
Paediatric Calcium, not adjusted	🟡	Avoid venestasis	4 hrs	Neonate 2.0 – 2.7 Infant – 16 yrs 2.2 – 2.7	mmol/L	IH
Calcium (24 hr Urine)	24 hr Urine (Acidified)	13, 18	2 days	2.5 - 7.5	mmol/24 hrs	SR
Carcino Embryonic Antigen	🟡		2 days	Age 20-69 <4.7 Age 40-69 <5.2	µg/L	SR
Cardiac Enzymes	🟡 or 🟢		4 hrs	See Report		IH
Cardiolipin Antibodies (IgG)	🟡		12 days	Negative: < 10 Weak Positive: 10 – 40 Positive: > 40	GPL-U/ml	EXT
Cardiolipin Antibodies (IgM)	🟡		12 days	Negative: < 10 Weak Positive: 10 – 40 Positive: > 40	MPL-U/ml	EXT
Cervical Cytology (HPV)	LBC container		5 - 7 days	See Report		EXT
Chlamydia, Eye Swab	Dry PCR swab		2-3 days	Negative or Positive by PCR		EXT
Chlamydia Genital Swab (endocervical and vaginal swabs only)	BD swab collection kit Chlamydia swab	14	2-3 days	Negative or Positive by PCR		SR
Chlamydia, Urine	BD urine collection kit	5	2-3 days	Negative or Positive by PCR		SR
Chloride	🟡		2 days	98 - 107	mmol/L	IH
Cholesterol	🟡 or 🟢		4 hrs	<5.0	mmol/L	IH
Chromium (MOM Hip Investigation)	🟣	15	7 days	See report	nmol/L	EXT
Citrulline Antibodies (Anti-CCP)	🟡		5 days	Negative: 0 - 7.0 Equivocal: 7.0 - 10.0 Positive: >10.0	Elia U/mL	EXT
CKMB	🟡		2 days	<25	IU/L	SR
Clostridium Difficile GDH and Toxin (C. Diff)	Faeces	16, 17	1-2 days	Positive or Negative		SR
CMV (Cytomegalovirus) IgG Antibodies	🟡		5 days	Detected or Not Detected		SR
CMV (Cytomegalovirus) IgM Antibodies	🟡		5 days	Detected or Not Detected		SR

Description	Sample	Notes / Instruction Ref	TAT	Reference Range	Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
Coagulation Screen (PT/APTT)	🔵	1, 7, 8	4 hrs	PT: 12.2 – 15.3 APTT: 23.1 – 33.8	secs	IH
Cobalt (Metal on Metal)	🟣	15	7 days	See Report	nmol/L	EXT
Coeliac Screen (see TTG and Endomysial Antibodies)	🟡		10 days			EXT
Complement C3	🟡		5 days	0.75 – 1.65	g/L	EXT
Complement C4	🟡		5 days	0.14 – 0.54	g/L	EXT
Copper (Serum)	🔴		7 days	<4 mths: 1.4 - 7.2 4-<6mths: 3.9 – 17.3 6m-<9yrs: 11.1 – 27.4 9-<13 yrs: 11.2 – 23.7 13-19 yrs: 11.0 – 22.5 >19 yrs: 11.0 – 25.1	µmol/l	EXT
Copper (24 hr urine)	24 hr Urine	13, 18, 19	7 days	Normal <0.7 Wilsons disease >1.8	µmol/24hrs	EXT
Cortisol	🟡	56	2 days	6-10am 166-507 4-8pm 73.8-291.0	nmol/L	SR
Cortisol (24 hr Urine)	24 hr Urine	13, 19	9 days	< 486	nmol/24 hr	EXT
Covid-19 Antigen SARS-Cov-2 PCR (swabbing maybe undertaken at any Spire Hospital site)	Viral swab	62	2 days	Detected / Not detected		SR
CPE Screening by Culture (Carbapenemase Producing Enterobacteriaceae)	Blue top Rectal Swab with visible faecal matter or stool sample		2-4 days, if positive confirmatory test may take longer	Detected or Not Detected		SR
Creatine phosphokinase	🟡 or 🟢		4 hrs	Female: 25 – 200 Male: 40 - 320	IU/L	IH
Creatinine	🟡 or 🟢		4 hrs	Neonates: 27 - 77 2 – 12 months: 14 - 34 1 – 3 years: 15 - 31 3 – 5 years: 23 - 37 5 – 7 years: 25 - 42 7 – 9 years: 30 - 47 9 – 11 years: 29 - 56 11 – 13 years: 39 - 60 13 – 15 years: 40 - 68 Adult: Female: 45 – 84, Male: 59 - 104	µmol/L	IH
Creatinine Clearance Test	🟡 +24 hr Urine	13, 19, 20	2 days	66 - 143	ml/min	SR
Creatinine (Random Urine)	Random Urine		2 days	Not applicable	mmol/L	SR
Creatinine (24 hr Urine)	24 hr Urine	13	2 days	Female: 6 - 13 Male: 9 - 19	mmol/24 hrs	SR
Crossmatch request	🩷	12, 43	1 – 2 days	Not applicable		IH / SR / EXT
Cryptosporidium microscopy	Stool		2-3 days			SR
Cryoglobulin	🟡	63	10 days	Not applicable		EXT
Crystals in Fluid	Fluid	5	1-2 days	Not applicable		SR

Description	Sample	Notes / Instruction Ref	TAT	Reference Range	Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
Crystals in Fluid and Culture	Fluid	5	Interim 2-3 days Final up to 7 days	Not applicable		SR
CSF Culture and Cell Count	CSF	1, 5	1-3 days	Not applicable		SR
CSF Glucose	● CSF (min 150 µl)	5	3 days	Interpret with serum glucose result Paed (<16 yr): 3.3 – 4.4 Adult: 2.2 – 3.9	mmol/L	EXT
CSF Protein	CSF	5	3 days	0.15 - 0.40	g/L	SR
Cytology, Fine Needle Aspirate	Aspirate	1, 5	7 days	Not applicable		IH/SR/ EXT
Cytology, Fluid	LBC container or universal	1	7 days	Not applicable		IH/SR/EXT
Cytology, Smear (HPV)	LBC container		5 - 7 days	Not applicable		EXT
Cytology, Urine	Urine	1, 5	7 days	Not applicable		IH/SR/EXT
D						
D-Dimer	Contact Laboratory	7, 8	Contact lab	Defined locally – see report	Defined locally	IH / EXT
Digoxin	●	23	3 days	0.5 – 2.0 Target range in heart failure is 0.5 – 1.0	mg/L	EXT
E						
eGFR	●or ●		4 hrs	See report for interpretation		IH
Ear swab	Orange top charcoalswab		3 days	5 days for fungal culture		SR
Endocervical swab	Black top Charcoal swab	50	2-4 days	Growth detected / Not detected		SR
Endomysial Antibodies (IgA)	●		10 days	Positive/Negative/ Equivocal		EXT
Epstein Barr virus (EBV) Antibodies	●		5 days	Detected / Not detected/ Equivocal		IH
Erythrocyte Sedimentation Rate (ESR)	●	51	4 hrs	Age (yrs) / M / F 10-50 / ≤10 / ≤12 51-60 / ≤12 / ≤19 61-70 / ≤14 / ≤20 >70 / ≤30 / ≤35	mm/hr	IH
Eye swab	Swab		2-4 days			SR
Expressed prostatic secretions (EPS) culture	EPS	5	2-4 days			SR
F						
Faecal Calprotectin	Stool	16	5 days	Normal : < 50 Median : 25 >50 regarded as positive	µg/g faeces	SR
Faeces Culture	Stool	16	2 - 4 days	Not applicable		SR

Description	Sample	Notes / Instruction Ref	TAT	Reference Range	Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
Faecal Elastase	Stool	16	5 days	Normal: >200 Moderate Pancreatic Insufficiency: 100-200 Severe Pancreatic Insufficiency: <100	µg/g faeces	SR
Faecal Immunochemical testing (FIT)	Stool collected in EXTEL HEMO-AUTO MC Collection Picker		7 days	Positive / Negative	µg Hb/g	SR
Ferritin	🟡		2 days	Female: 13 – 150 Male: 30 - 400	µg/L	SR
Fibrinogen	🔵	1, 7, 8	24 hrs	Generally, between 1.5 – 4.0. See individual reports for specific reference range	g/L	IH / EXT
Fluid /aspirate/Pus culture from non-sterile sites	State site	5	Interim 2-4 days			SR
Fluid /aspirate/Pus culture from sterile sites	State site	5	Interim 2-4 days			SR
Fluid Or Aspirate For Culture Orthopaedic culture	State Site	5, 58	Interim 2-3 days Final up to 7 days 21 days	Not applicable		SR
Fluid (from sterile sites) in blood culture bottles	A minimum of 3ml and max of 10ml to be put into each of an anaerobic bottle and aerobic bottle		Interim 2-4 days			SR
Fluid Or Aspirate for Culture with TB Culture	State Site	5, 57, 58	Interim 2-3 days Final up to 7 days (routine culture)	Not applicable		EXT
Fluid Or Aspirate for TB Culture	State Site	5,	Microscopy 2-3 days Culture up to 8 Weeks	Not applicable		EXT
Folate (Serum)	🟡	1, 6, 36, 56	2 days	3.89 – 26.8	µg/L	SR
Follicle Stimulating Hormone	🟡		2 days	Follicular: 3.5 - 12.5 Ovulation: 4.7 - 21.5 Luteal: 1.7 - 7.7 Post Menopause: 25.8 – 134.8 Male: 1.5 – 12.4	mIU/ml	SR
Free Androgen Index	🟡	67	2 days	Male aged 20 - 49: 35.0 - 92.6 Male aed >=50: 24.3 - 72.1 Female aged 20-49: 0.297 - 5.62 Female aged >= 50: 0.187 - 3.63	%	SR
Free T3	🟡		2 days	3.1 - 6.8	pmol/L	SR
Free T4	🟡		2 days	12 - 22	pmol/L	SR
Full Blood Count (FBC including Differential)	🟣		4 hrs	Male: WBC 4.0 – 10.0 Female: WBC 4.0 – 10.0	x10^9/L	IH

Description	Sample	Notes / Instruction Ref	TAT	Reference Range			Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
For paediatric reference ranges please see tables at the end of this section				RBC	4.5 – 5.5	3.8 – 4.8	X10^12/L	
				Hb	130 - 170	120 - 150	g/L	
				HCT	0.4 – 0.5	0.36 – 0.46	ratio	
				MCV	83 - 101	83 - 101	fL	
				MCH	27.0 – 32.0	27.0 – 32.0	pg	
				MCHC	315 - 345	315 - 345	g/L	
				Platelets	150 - 410	150 - 410	X10^9/L	
				RDW	11.6-14.0	11.6-14.0	CV%	
				Neutrophil Abs	2.0 – 7.0	2.0 – 7.0	X10^9/L	
				Lymphocytes abs	1.0 – 3.0	1.0 – 3.0	X10^9/L	
				Monocytes abs	0.2 – 1.0	0.2 – 1.0	X10^9/L	
				Eosinophils abs	0.02 – 0.5	0.02 – 0.5	X10^9/L	
				Basophils abs	0.02 – 0.1	0.02 – 0.1	X10^9/L	
G								
Gamma Glutamyl Transaminase	● or ●		4 hrs	Female: 1 - 40 Male: 1 - 60			IU/L	IH
Gentamicin	●	24	1 day	Defined locally				EXT
Glucose (Serum)	● or ●	56, 68	4 hrs	See Report			mmol/L	IH
Glucose Tolerance Test	●	By arrangement with OPD	4 hrs	See Report			mmol/L	IH
Glycated Haemoglobin / Haemoglobin A1c (HbA1c)	●		2 days	See Report			%	SR
Gonorrhoea culture	Black top Charcoal swab	50	2 - 4 days	Growth detected / not detected				SR
Gonorrhoea, PCR (Urine sample, endocervical or vaginal swab only	BD swab collection kit or random urine collected in "BD" urine collection kit	14	2 - 3 days	Negative or Positive by PCR				SR
H								
Harmony (Non-Invasive Paternity Test)	Contact Lab	9,25	14 days	See Report				EXT
HDL Cholesterol	● or ●		4 hrs	Desirable Ranges Female: > 1.2 Male: > 1.0			mmol/L	IH
Helicobacter Pylori Culture and susceptibility testing	Gastric Biopsy in Dents transport media (contact lab)	26	15 - 18 Days	Not applicable				SR

Description	Sample	Notes / Instruction Ref	TAT	Reference Range	Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
Helicobacter Pylori Faecal Antigen	Stool	16	2 days	Detected or Not Detected		SR
Hepatitis A Antibodies (IgM)	●		3 days	Detected or Not Detected		SR
Hepatitis B Total Core Antibodies (IgM/IgG)	●		2 days	Detected or Not Detected		SR
Hepatitis B (e) Status	●		10 days	Detected or Not Detected		SR
Hepatitis B Surface Antibodies	●		2 days	See Report	IU/L	SR
Hepatitis B Surface Antigen (HbsAg)	●		2 days	Detected or Not Detected		SR
Hepatitis C Antibodies	●		2 days	Detected or Not Detected		SR
Herpes Simplex type I IgG	●		5 days	Detected / Not detected/ Equivocal		IH
Herpes Simplex type II IgG	●		5 days	Detected / Not detected/ Equivocal		IH
Histology – diagnostic biopsy	See Note 27	27, 61	7 days	See Report		IH/SR/EXT
Histology – samples which are non-diagnostic	See Note 27	61	10 days	See Report		IH/SR/EXT
Histology Frozen section	Fresh sterile universal container	Please contact lab before arranging	Tissue type dependant	See Report		IH/EXT
HIV 1, 2 Antibodies and p24 Antigen	●		2 days	Detected or Not Detected		SR
High Vaginal Swab	See Note 28	28	3-5 days	Not applicable		SR
I						
IGF1 (Somatomedin)also known as Insulin like GF1	●	29	9 days	Age and gender related See report	nmol/L	EXT
Immunoglobulins (IgG, IgM, IgA)	●		2 days	See report – age related		SR
Immunohistochemistry	Fixed tissue on slide	49	Tissue type dependant			IH/SR/EXT
Insulin	●	56	2 days	17.8 – 173.0	pmol/L	SR
INR	●	1, 7, 8	4 hrs	Normal 0.8 – 1.2 Anticoagulation therapy below Target INR 2.5 (2.0 – 3.0) — For conditions See note 46 Target INR 3.5 (3.0 – 4.0) — For conditions See note 47	ratio	IH
Iron	●		2 days	5.83 – 34.5	µmol/L	SR
Iron and TIBC	●		2 days	See Report		SR
IUCD	Device in sterile pot		2-4 days			SR
IV Tip culture	5cm portion of tip		2-4 days			SR
J						

Description	Sample	Notes / Instruction Ref	TAT	Reference Range	Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
JAK2 Mutation	🟣🟣		12 days			EXT
K						
Karyotyping (X/Y)	🟢	1, 4, 30, 42	45 days			EXT
L						
Lactate	⚪		4 hours	<16 years 0.6 - 2.5 >16 years 0.5 - 2.2	mmol/L	IH / EXT
Lactate Dehydrogenase	🟡 or 🟢	56	4 hrs	Female: 135 - 214 Male: 135 - 225	IU/L	IH
LDL Cholesterol (Low Density Lipoprotein)	🟡 or 🟢		4 hrs	<3.0	mmol/L	IH
Legionella Antigen	Urine	65	4 days	Detected / Not detected		EXT
Lipid Profile	🟡 or 🟢		4 hrs	See Report		IH
Lipoprotein (a)	🟡	3	2 days	Desirable range <50 in non-Hispanic Caucasians	nmol/L	SR
Lithium	🟡	4, 31	2 days	See report	See report	IH/SR/ EXT
Liver Function Tests	🟡 or 🟢		4 hrs	See Report		IH
Lupus Anticoagulant Screen	🔵🔵🔵🔵	1, 3, 6, 7, 8, 25, 34	7 days	Contact lab for Interpretation of results.		SR
Luteinising Hormone	🟡		2 days	Follicular: 2.4 -12.6 Ovulation : 14.0 - 95.6 Luteal : 1.0 - 11.4 Post Menopause : 7.7 - 58.5	U/L	SR
M						
Magnesium (Serum)	🟡 or 🟢		4 hrs	Adult 0.7 – 1.0 Neonate 0.6 – 1.0 Infant – 16 yr 0.7 – 1.0	mmol/L	IH
Magnesium (Red Cell)	🟣🟣	40	7 days	See report		EXT
Magnesium (Urine)	Random Urine	5	2 days	Ref Range only quoted for 24hr collection	mmol/L	SR
Magnesium (24 hr Urine)	24 hr Urine (Acidified)	13	2 days	See report	mmol/24 hrs	SR
Malarial Parasites	🟣	48	4 hours	Detected or Not Detected		IH / EXT
Measles Antibodies (IgG)	🟡		5 days	Detected or Not Detected		SR
Measles Antibodies (IgM)	🟡		5 days	Detected or Not Detected		SR
Metadrenalines (Urine)	24 hr Urine (Acidified)	13, 18	12 days	See Report		EXT
Metal work for culture	Metal work in sterile pot		2-4 interim, Up to 16 days final			SR
Metanephrines (plasma)	2x 🟣	1, 3	15 days	Normetanephrine: <170 Metanephrine <100	ng/L	EXT
Mouth swab	Blue top swab		2-4 days			SR
MRSA swab	Blue top swab		Negative 1-2 days Positive 2-3 days	Not Isolated or See Report		SR
MSSA swab	Blue top swab		Negative 1-2 days	Not Isolated or See Report		SR

Description	Sample	Notes / Instruction Ref	TAT	Reference Range	Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
			Positive 2-3 days			
Mumps IgG Antibodies	🟡		5 days	Detected or Not Detected		SR
Mumps IgM Antibodies	🟡		5 days	Detected or Not Detected		SR
Mycopasma genitalium and Ureaplasma by PCR	Urine with white top container		12 days			EXT
Mycology	Skin scrapings, hair or nails ONLY	25	Minimum 21 days	Not applicable		SR
N						
Norovirus Screening	Faeces	16, 17	2 - 3 days	Detected or Not Detected		EXT
Nose swab	Blue top swab		2 – 4 days			SR
O						
Oestradiol	🟡	56	2 days	Follicular: 114 - 332 Ovulation : 222 - 1959 Luteal : 222 - 854 Post Menopause : < 18.4 - 505 MALES : 41.4 - 159	mol/L	SR
Oligoclonal bands	🟡 +CSF in white top container 0.2 ml paired serum required	5, 22	9 days	See Report		EXT
Ova, cysts and parasites (Faeces)	Faeces	9, 10, 16	3 days	Not applicable		SR
P						
Parathyroid Hormone (Intact)	🟣	56	2 days	17.3 – 74.1 See report for associated comment	pg/mL	SR
Pemphigoid Antibodies	🟡		8 days	Positive/ Negative		EXT
Pemphigus Antibodies	🟡		8 days	Positive/ Negative		EXT
Penile swab	Blue top swab		2 – 4 days			SR
Phosphate	🟡 or 🟢	56	4 hrs	Adult: 0.80 - 1.50 Neonate: 1.3 – 2.6 Infant: 1.3 – 2.4 1 – 16 yrs: 0.9 – 1.8	mmol/L	IH
Phosphate (Random Urine)	Random Urine	5	2 days	Ref Range only quoted for 24hr collection	mmol/L	IH
Phosphate (24 hr Urine)	24 hr Urine (Acidified)	13, 18, 19	2 days	13 - 44	mmol/24 hrs	SR
Potassium	🟡 or 🟢		4 hrs	Adult: 3.5 - 5.3 Neonate: 3.4 – 6.0 Infant: 3.5 - 5.7 1 – 16 yr: 3.5 – 5.0	mmol/L	IH

Description	Sample	Notes / Instruction Ref	TAT	Reference Range	Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
Potassium (Random Urine)	Random Urine	5	2 days	Ref Range only quoted for 24hr collection	mmol/L	SR
Potassium (24 hr Urine)	24 hr Urine	13	2 days	25 - 125	mmol/24 hrs	SR
Pregnancy Test (Urine)	Random Urine	5	4 hrs	Negative/Positive		IH
proBNP	🟡	4, 56	3 days	0 - 400	ng/L	SR
Progesterone	🟡	56	2 days	Follicular: <0.159-0.616 Ovulation phase: 0.175-13.2 Luteal phase: 13.1-46.3 Post Menopause: <0.159 – 0.401 MALE: <0.159 – 0.474	nmol/L	SR
Prolactin	🟡		2 days	Woman (not pregnant): 102-496 MALE: 86 - 324	mU/L	SR
Prostate Specific Antigen	🟡	56	2 days	Age specific See Report	ng/ml	SR
Protein (Fluid)	Fluid	5	2 days	See Report	g/L	SR
Protein (Random Urine)	Random Urine	5	2 days	Ref Range only quoted for 24hr collection	g/L	SR
Protein (24 hour Urine)	24 hr Urine	13	2 days	< 0.15	g/24 hrs	SR
Protein Electrophoresis	🟡		5 days	See Report		SR
Prothrombin Time	🔵	1, 7, 8, 59	4 hrs	See report	sec	IH
Pus swab from sterile site	Swab		5 -7 days			SR
Q						
Quantiferon TB Gold	Contact Lab	25	5 days	Negative, Intermediate or Positive		SR
R						
RAST See Total IgE or Specific IgE	🟡	33				EXT
Red Cell Folate	🟣	36	3 days	200-650	ug/L	EXT
Rheumatoid Factor	🟡		5 days	<15 Negative 15 – 20 Weak Positive >20 Positive	IU/ml	EXT
Rotavirus	Faeces		5 days			EXT
Rubella (IgG)	🟡		3 days	See Report	IU/mL	SR
Rubella (IgM)	🟡		3 days	See Report	U/L	SR
S						
Serotonin	2x🟢	3	15 days	See report		EXT
Serum Free Light Chains	🟡		7 days	Kappa: 3.30 - 19.4 Lambda : 5.71 - 26.3 Ratio : 0.26 - 1.65	mg/L	EXT
Sex Hormone Binding Globulin	🟡		Up to 10 days	Age related – see report	nmol/L	SR
Sickle Cell Screen	🟣		2 days	See Report		SR/EXT

Description	Sample	Notes / Instruction Ref	TAT	Reference Range	Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
Sodium	🟡 or 🟢		4 hrs	133 - 146	mmol/L	IH
Sodium (Fluid)	Fluid	5	2 days		mmol/L	SR
Sodium (Random Urine)	Urine	5	2 days	Ref Range only quoted for 24hr collection	mmol/L	SR
Sodium (24 hour Urine)	24 hr Urine	13	2 days	40 - 220	mmol/24 hrs	SR
Specific IgE (Individual Allergens or components)	🟡	33	7 days	See report	kU/L	EXT
Sputum For Culture	Sputum	5	2-4 days	Not applicable		SR
Sputum For Culture including TB Culture	Sputum – preferrably first sputum of the day	5, 57	3-5 days (routine culture)	Not applicable		EXT
Sputum For TB Culture	Sputum - preferrably first sputum of the day	5, 57	Microscopy 2-3 days Culture up to 8 Weeks	Not applicable		EXT
Stone (Calculi) Analysis	Stone	5	9 days	Not applicable		EXT
Syphilis (RPR, VDRL,TPHA)	🟡		3 days	Detected or Not Detected		SR
Synacthen Test	🟡		Up to 3 days	See Report		SR
T						
TB Culture (Sputum, Fluid, Aspirate or Tissue)	Sputum /Fluid / Tissue/ ASP	5, 57	Microscopy 2-3 days, Culture up to 8 Weeks	Not applicable		EXT
TB Culture (Early morning urine)	Whole bladder Early morning urine (EMU) x 3 consecutive days	44, 57	Up to 8 weeks	Not applicable		EXT
Testosterone	🟡		2 days	Sex and age related See Report	nmol/l	SR
Testosterone (Free)	🟡	66	2 days	Male aged 20 -49: 0.198 – 0.619 Male aged >= 50: 0.163 - 0.473 Female aged 20-49: 0.003 – 0.033 Female aged >= 50: 0.001 – 0.020	nmol/L	SR
Tip/line culture	5cm portion of tip		2-4 days			SR
Tissue/biopsy routine culture from sterile sites	Tissue in sterile pot	58	2-4 days interim, up to 16 days for final			SR
Throat swab	Blue top swab		2-4 days			SR
Thrombin Time	🔵	1, 7, 8	2 days	11.0 - 17.8	sec	SR
Thrombophilia screen	🔵🔵🔵🔵🟣	1, 6, 7, 8, 34	10 days	Contact Lab for Interpretation		SR

Description	Sample	Notes / Instruction Ref	TAT	Reference Range	Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
Thyroglobulin Antibodies	🟡		9 days	< 20 Post thyroid ablation: <0.1L	kU/L	EXT
Thyroid Peroxidase Antibodies	🟡		9 days	0 – 24	IU/mL	EXT
Thyroid Receptor Antibodies	🟡	3	17 days	< 1.0	IU/L	EXT
Thyroid Stimulating Hormone (TSH)	🟡		2 days	0.27 -4.20	mU/L	SR
Tissue for Culture Orthopaedic tissue	State Site	5	Interim 2-3 days Final up to 16 days 21 days	See Report		SR
Tissue For Culture with TB Culture	State Site	5, 57, 58	See individual tests	See Report		EXT
Tissue Transglutaminase (TTG) Antibodies IgA	🟡		10 days	Negative: < 7 Equivocal: 7 - 10 Positive: > 10	Elia u/ml	EXT
Trichomonas, PCR	BD swab collection kit for endocervical or vaginal, or random urine collected in BD urine collection kit	14	3 days	Negative or positive by PCR		SR
Total IgE	🟡	33	7 days	Age dependant – see report	KU/L	EXT
Total Protein	🟡 or 🟢		4 hrs	60 - 80	g/L	IH
Total Protein (24 hr Urine)	24 hr Urine	5, 13	2 days	< 0.15	g/24 hrs	SR
Triglycerides	🟡 or 🟢	56	4 hrs	<1.7	mmol/L	IH
Troponin T	Contact laboratory	1, 42	Up to 1 day	See report	See report	IH / EXT
Toxoplasma IgG / IgM	🟢		5 days	Detected / Not detected/ Equivocal		IH
U						
Urea	🟡 or 🟢		4 hrs	Adult: 2.5 - 7.8 Neonate: 0.8 – 5.5 Infant: 1.0 – 5.5 1 – 16 yr: 2.5 – 6.5	mmol/l	IH
Urea (Random Urine)	Random Urine	5	2 days	Ref Range only quoted for 24hr collection	mmol/L	SR
Urea (24 hr Urine)	24 hr Urine	13	2 days	428 - 714	mmol/24 hrs	SR
Urea and Electrolytes (U&E)	🟡 or 🟢		4 hrs	See Report		IH
Urea and electrolytes (24 hr Urine)	24 hr Urine	13, 19	2 days	See Report		SR

Description	Sample	Notes / Instruction Ref	TAT	Reference Range	Units	In-House (IH)/ Spire In-House Referred (SR) /External Test (EXT)
Urethral swab	Black top Charcoal swab	50	2 - 4 days	Growth detected / Not detected		SR
Uric Acid (Serum)	🟡 or 🟢	56	4 hrs	Female: 140 - 360 Male: 200 - 430	µmol/L	IH
Uric Acid (Fluid)	Fluid	5	2 days			SR
Uric Acid Random Urine)	Random Urine	5	2 days	Ref Range only quoted for 24hr collection	mmol/L	SR
Uric Acid (24 hr Urine)	24 hr Urine	13, 19	2 days	1.5 - 4.5	mmol/24 hrs	SR
Urine for microscopy and culture	Mid-stream Urine collected in Boric acid container filed to 20 mls (red top universal)	21	2-4 days	Not applicable		SR
V						
Vaginal Swab	Black top charcoal swab	28	2-4 days			SR
Varicella Zoster IgG	🟡		5 days	Detected or Not Detected		SR
Varicella Zoster IgM	🟡		5 days	Detected or Not Detected		SR
Viral Screening	🟡🟡	9	Up to 7 days	Detected or Not Detected		SR
Viral swab PCR for Herpes, VZV, , Enterovirus	Green viral swab (contact lab) State which virus to be tested on request form		5 days			EXT
Vitamin B12	🟡	3, 56 Avoid Haemolysis	4 days	197 - 771	ng/l	SR
Vitamin D (1,25 Dihydroxycholcalciferol)	🟡	1, 35, 36, 56	14 days	48 - 192	pmol/l	EXT
Vitamin D (25 Hydroxy)	🟡	1, 56, 60	7 days	< 25 Vitamin D deficiency 25 – 50 May be inadequate 51 – 250 Sufficient > 250 Possible vitamin D toxicity	nmol/l	EXT
Vulval culture	Blue top Swab		2-4 days			SR
W						
Wound swab - all sites	Blue top Swab		2-4 days			SR
X						
Y						
Y Microdeletion	🟣🟣	26,30	35 days	See Report		EXT
Z						
Zinc (Serum)	🔴		7 days	–See report – age related	µmol/l	EXT
Zinc (Urine)	Random Urine	5	7 days	< 1.1	µmol/mmol creat	EXT

22.1 Reference ranges for paediatric Full Blood Counts

Parameter	Birth	Day 3	Day 7	Day 14	1 Month	2 Months

RBC (x 1012/L)	6.0 ± 1.0	5.3 ± 1.3	5.1 ± 1.2	4.9 ± 1.3	4.2 ± 1.2	3.7 ± 0.6
HB (g/L)	180 ± 40	180 ± 30	175 ± 40	165 ± 40	140 ± 25	112 ± 18
HCT (L/L)	0.60 ± 0.15	0.56 ± 0.11	0.54 ± 0.12	0.51 ± 0.20	0.43 ± 0.10	0.35 ± 0.07
MCV (fl)	110 ± 10	105 ± 13	107 ± 19	105 ± 19	104± 12	95 ± 8
MCH (pg)	34 ± 3	34 ± 3	34 ± 3	34 ± 3	33 ± 3	30 ± 3
MCHC (g/L)	330 ± 30	330 ± 40	330 ± 50	330 ± 50	330 ± 40	320 ± 35
WBC (x109/L)	18 ± 8	15 ± 8	14 ± 8	14 ± 8	12 ± 7	10 ± 5
Platelets (x109/L)	100-450	210-500	160-500	170-500	200-500	210-650
Neutrophils (x109/L)	4-14	3-5	3-6	3-7	3-9	1-5
Lymphocytes (x109/L)	3-8	2-8	3-9	3-9	3-16	4-10
Monocytes (x109/L)	0.5-2.0	0.5-1.0	0.1-1.7	0.1-1.7	0.3-1.0	0.4-1.2
Eosinophils (x109/L)	0.1-1.0	0.1-2.0	0.1-0.8	0.1-0.9	0.2-1.0	0.1-1.0

Parameter	3-6 Months	1 Year	2-6 Years	6-12 Years
RBC (x 10^{12}/L)	4.7 ± 0.6	4.5 ± 0.6	4.6 ± 0.6	4.6 ± 0.6
HB (g/L)	126 ± 15	126 ± 15	125 ± 15	135 ± 20
HCT (L/L)	0.35 ± 0.05	0.340 ± 0.04	0.370 ± 0.03	0.40 ± 0.05
MCV (fl)	76 ± 8	78 ± 6	81 ± 6	86 ± 9
MCH (pg)	27 ± 3	27 ± 2	27 ± 3	29 ± 4
MCHC (g/L)	330 ± 30	340 ± 20	340 ± 30	340 ± 30
WBC (x10^9/L)	12 ± 6	11 ± 5	10 ± 5	9 ± 4
Platelets (x10^9/L)	200-550	200-550	200-490	170-450
Neutrophils (x10^9/L)	1-6	1-7	1.5-8	2-8
Lymphocytes (x10^9/L)	4-12	3.5-11.0	6.0-9.0	1.0-5.0
Monocytes (x10^9/L)	0.2-1.2	0.2-1.0	0.2-1.0	0.2-1.0
Eosinophils (x10^9/L)	0.1-1.0	0.1-1.0	0.1-1.0	0.1-1.0

Key to Notes

1 Send to lab immediately.

2 Labile - must reach lab on same day as sample collected. Bean sized volume of faeces required in sputum/faeces pot.

3 Send frozen (**by laboratory**)

4 Store between 2 - 8°C

5 30ml sterile White top Universal container.

6 Sample should be separated and frozen within 2 hours of being taken. If a delay is expected with transportation to the testing laboratory samples must be transported frozen.

7 If collecting using Butterfly system discard initial blue bottle.

8 If possible, it is preferable to collect blood WITHOUT using tourniquet. Citrate (Blue bottles) MUST always be taken before other coloured bottles and filled to the line.

9 Clinical history and any medication information must be provided. Date of onset if microbiology or virology test.

10 Provide details of patient travel history.

11 bottles must be filled accurately with 8-10ml blood in each and must be sent to agreed testing laboratory to arrive within 4 hours of collection. This is to ensure optimal recovery of organisms.

12 Large PINK bottle. Sample must be labelled clearly by HAND with first name, surname, date of birth and either patient number or postal code. The sample MUST be signed by the person taking the blood.

13 Provide volume/date/time for all 24-hour samples.

14 Use BDMax specimen kits available form the NDC.

15 To avoid external contamination, take two EDTA samples and discard the first. Min 2mls blood.

16 Faeces in sterile **blue** top stool pot.

17 Formed faeces will not be tested

18 24-hour Urine container must be acid washed or contain acid, **contact lab.**

19 **Laboratory advice:** 20ml aliquot. Give 24-hour volume in ml. Store aliquot at 2-8°C.

20 Blood sample must be collected during 24-hour Urine collection time.

21 State whether CSU, MSU or specific type on sample bottle and request form. Use **Red** top (Boric Acid) urine bottle. DO NOT use sputum pots.

22 Min 1 ml CSF and min 2ml serum. Paired CSF and serum required (max 5 days apart). Store at 4°C.

23 Sample must be taken 6 - 10 hours post dose State dose and time of dose Minimum volume 125 µL of serum Digibind affects results, state if patient is on Digibind therapy

24 State if pre or post dose sample, give last time of dose, state dose and other medication.

25 Contact the laboratory for special sample tubes/containers/kit and/or instructions.

26 Collect Monday to Thursday only. Must arrive at laboratory before noon.

27 Sample codes are applied at the discretion of the Histopathology staff. All patient demographics and sample description must be on both the sample container and the request form. Relevant clinical history should be provided. Samples must be completely immersed in formaldehyde.

28 **Black** swab preferred will accept **blue** swab. State region swabbed on both sample and request form. For genital swabs from patients with clinical details:? Trichomonas vaginalis,? Sexually transmitted disease (STD/ STI) or if the patient is pregnant. Please also send a BDMAX PCR swab for CT/GC/TV PCR testing

29 Minimum 0.2ml. Freeze until dispatch if >24 hours

30 Special Genetics form must be sent with sample, available on the Clinical Intranet, Pathology page.

31 Collect blood a minimum of 12 hours post last dose of Lithium.

32 GOLD top sample only when processed on the same day (this is only applied when the sample will arrive at Spire Laboratory Centennial Park on the same day). If the sample is transported overnight –need EDTA sample spun, separated and frozen.

33 Include copy of allergy referral form with sample

34 Citrated tubes should be double centrifuged

35 **Laboratory advice**: Sample should be separated and frozen within 4 hours.

36 Protect from light, wrap completely in foil and transport to lab immediately.

37 10 mls required

38 Full blood count must be performed prior to carrying out the analysis

39 Sample should not be more than 7 days old

40 Send Mg serum result and haematocrit from FBC

41 Stable for 2 - 4 hours at 20 - 25 °C, for 24 hours at 2 - 8 °C and at -20°C for one month. Sample should be frozen if a delay is expected with transportation to the testing laboratory, samples must be transported frozen.

42 Do **NOT** spin.

43 Samples from patients who have not had a transfusion or been pregnant in the last 3 months are able to be cross matched from this sample up to 7 days before transfusion; otherwise, sample must be taken within 72 hours of the transfusion. Please ensure the laboratory is aware if this is an urgent request. A second sample may be required if there is no historic group available for the patient.

44 3 consecutive early morning whole bladder urine specimens to be collected in large 250ml containers.

46 Treatment of DVT, PE, AF, recurrent DVT off warfarin, symptomatic inherited thrombophilia, cardiomyopathy, mural thrombus, cardioversion.

47 Recurrent DVT while on warfarin, mechanical prosthetic heart valves, antiphospholipid syndrome (some cases)

48 Negative smears will be confirmed by an alternative method

49 ER, PR and Her-2 are referred externally to University College London. Most other IHC is processed in-house at Spire Manchester and Spire Alexandra.

50 Swab must reach the laboratory within 24 hours of being taken otherwise detection of Gonorrhoeae may be compromised. Do not refrigerate.

51 If a black topped ESR seditainer sample cannot reach the laboratory within 4 hours of collection an EDTA sample should be taken.

52 Avoid patient stress. Transport immediately on ice as required to be separated within 30 minutes. **Laboratory advice**: Freeze plasma in less than 2 hours. Send plasma frozen. Visible haemolysis will invalidate test. Minimum 3 mL plasma.

53 Sample stable for 7 days from time of sample collection to testing at referral laboratory.

56 The addition of the following tests can be made in the timeframe displayed post phlebotomy. Additional biochemistry tests may be requested up to 7 days from sample receipt, with the exception of those listed in the table below and only if the laboratory has capacity to store these

Glucose	3 days	CA 15-3	5 days	Pro BNP	6 days
LDH	4 days	Cortisol	4 days	Progesterone	5 days
Phosphate	4 days	Oestradiol	2 days	Parathyroid Hormone	2 days
Triglycerides	5 days	Folate	2 days	TPSA	3 days
Uric Acid	5 days	FPSA	3 days	Vitamin B12	2 days
CA 125	5 days	Insulin	2 days	Vitamin D	3 days RT, 7 days if separated and stored at 4 oC
Sodium	14 days	Potassium	14 days	Chloride	7 days

57 Atypical Mycobacteria may take up to 10 weeks. If fast track TB PCR is required on primary samples; note that the primary sample is only retained for 48 hours after processing. Therefore, the request must be relayed to the microbiology lab immediately to ensure the sample is still available to action the request.

58 Orthopaedic samples may take up to 16 days. 14-day extended enrichment culture can be requested for sterile site samples. Please add this request in the clinical details where required.

59 Reference range dependent upon analyser type. Please contact local laboratory

60 **Laboratory advice**: If there will be a delay before sending, store serum frozen and send thawed

61 Excluded tests include Her 2 FISH (not Her ICC) and molecular tests, and decalcified whole specimens

62 Single swabs used for throat then nose into one pot of viral transport medium. Bacterial or charcoal swabs are not suitable.

63 **Hospital advice:** Take with a Prewarmed syringe, ensure vacutainer and transport equipment are prewarmed. Samples for cryoglobulin testing must be taken and transported to the laboratory at 37 degrees using an appropriate kit to obtain valid results. If this procedure is not followed when collecting the sample, it can lead to a false negative result.
Laboratory advice: samples must be incubated at 37 degrees and centrifuged prior to sending.

64 Collect Pernasal Swab from upper naso pharynx, the swab should be inserted gently down the nose as far as "gag" reflex allows.
Please clearly state relevant clinical details pertaining to the reasons behind taking the sample i.e. hot/pain/red. Samples without relevant clinical details may be rejected.
Please state on form if the patient has had recent foreign travel or if there is a strong suspicion of high-risk pathogens as these pose a risk to laboratory staff.

65 Please clearly state relevant clinical details pertaining to the reasons behind taking the sample i.e. hot/pain/red. Samples without relevant clinical details may be rejected.
Please state on form if the patient has had recent foreign travel or if there is a strong suspicion of high-risk pathogens as these pose a risk to laboratory staff.

66 Calculated tests based on Albumin, Testosterone and SHBG levels

67 A ratio based on the Testosterone and SHBG results

68 Spire Laboratory Medicine is currently undergoing a Biochemistry analyser replacement programme. Please see report for reference ranges.

Appendix 3 – Instructions for the Collection of Histology Specimens

Spire
Pathology Services

WORK INSTRUCTION
HISTOLOGY SAMPLE PREPARATION

How to manage Spire Healthcare samples that require histological examination by Spire Pathology Services. If your histology samples are sent outside of Spire Pathology, then please check the sample preparation criteria required by your pathology supplier.

Histology Samples

Specimens requiring histological examination may come from a number of different sources. They range from very large specimens or whole organs to tiny fragments of tissue. For example, the following are some of the specimen-types commonly sent to a histopathology lab.

- Excision specimens (surgical biopsies), where whole organs or affected areas are removed at operation
- Incisional biopsy specimens, where tissue is removed for diagnosis from within an affected area
- Punch biopsies, where punches are used to remove a small piece of suspicious tissue for examination (often from the skin)
- Shave biopsies, where small fragments of tissue are "shaved" from a surface (usually skin)
- Curettings, where tissue is removed in small pieces from the lining of the uterus or cervix
- Core biopsies, where a small tissue sample is removed using a special needle sometimes through the skin (percutaneously).

Specimens are usually received in fixative (preservative) but sometimes arrive fresh and must be immediately fixed. Before specimens are accepted by a laboratory the identification (labelling) and accompanying documentation will be carefully checked, all details recorded and "specimen tracking" commenced.

Fixation

Fixation is a crucial step in preparing specimens for microscopic examination. Its objective is to prevent decay and preserve cells and tissues in a "life-like" state. It does this by stopping enzyme activity, killing microorganisms and hardening the specimen while maintaining sufficient amount of the molecular structure to enable appropriate staining methods to be applied . The sooner fixation is initiated following separation of a specimen from its blood supply the better the result will be. The most popular fixing agent is formaldehyde, usually in the form of a phosphate-buffered solution (often referred to as "formalin"). Ideally specimens should be fixed by immersion in formalin for six to twelve hours before they are processed by the pathology department

Sample management to be carried out at the time the sample is taken from the patient.

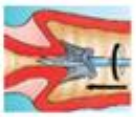
- **Fixation in 10 % neutral buffered formalin is a critical step in the preparation of histological sections. If it is not carried out under optimal conditions or if fixation is delayed, a tissue specimen can be irreversibly damaged**
- **Samples must be placed in sufficiently large containers to ensure the sample is completely submerged in 10% neutral buffered formalin. Container should be large enough so the sample can move freely within it in order to prevent damage and preserve the integrity of the tissue**
- **All samples and request forms are to be completed with patient surname, first name, date of birth, hospital number and anatomical site**
- **Details of the sample type, location, number of biopsies should be recorded on the request form and include as much detail as possible to aid in the processing and diagnostic management of the sample as possible**
- **All histology samples must be delivered to the pathology department as soon as possible after collection**
- **All histology samples must be stored at room temperature, they must NOT be placed in a fridge or incubator**

	Histology pot containing 10% neutral buffered formalin	Quantity of pots	Formalin volume in pre-filled pot	NSV SAP ordering Code
1	Pre- filled formalin biopsy pots	Box of 25 pots	60 mls	2STA2557
2	Pre- filled formalin pots	Box of 10 pots	250 mls	4KCP0577
3	Pre- filled formalin pots	Box of 10 pots	350 mls	4KCP0269
4	Pre- filled formalin pots	Box of 8 pots	500 mls	4KCP0001
5	Pre- filled formalin pots	Box of 6 pots	1 litre	4KCP0002
6	Pre- filled formalin pots	Box of 4 pots	2.5 litre	4KCL0036
7	Pre- filled formalin pots	1 pot	5 litre	4KCL0034
8	Pre- filled formalin pots	1 large pot	10 Litre	4KCL0033

Appendix 4- Broom Like device Protocol for LBC sample collection

Spire
Pathology Services

COLLECTING A SAMPLE FOR THIN PREP LIQUID BASED CYTOLOGY
USING THE BROOM LIKE DEVICE PROTOCOL



Obtain...

...an adequate sampling from the cervix using a broom-like device. If desired, use lukewarm water to warm and lubricate the speculum. Water-soluble gel lubricant sparingly applied to the posterior blade of the speculum can be used if necessary.[1] Insert the central bristles of the broom into the endocervical canal deep enough to allow the shorter bristles to fully contact the ectocervix. Push gently, and rotate the broom in a clockwise direction five times.

Rinse...

...the broom as quickly as possible into the PreservCyt solution vial by pushing the broom into the bottom of the vial 10 times, forcing the bristles apart. As a final step, swirl the broom vigorously to further release material. Discard the collection device.

Tighten...

...the cap so that the torque line on the cap passes the torque line on the vial.

Record...

...the patient's name and ID number on the vial, and the patient information and medical history on the cytology requisition form.

Place...

...the vial and requisition in a specimen bag for transport to the laboratory.

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Appendix 5 – Guide to taking Specimens for Microbiological Investigation

When taking a swab specimen ensure it has been fully rotated over the area being swabbed

25.1 Ear swabs and associated specimens

Unless otherwise stated, swabs for bacterial and fungal culture should then be placed in appropriate transport medium

Swab any pus or exudates can be submitted for examination. Pus or exudate is preferred. For investigation of fungal infection, scrapings of material from the ear canal are preferred although swabs can also be used.

Collect specimens other than swabs into appropriate CE marked leakproof containers and place in sealed plastic bags.

25.2 Eye swabs for bacterial infections

Unless otherwise stated, swabs for bacterial and fungal culture should be placed in appropriate transport medium.

Collect specimens other than swabs into appropriate CE marked leakproof containers and place in sealed plastic bags.

Collect specimens before antimicrobial therapy where possible.

Corneal scrapings and intraocular fluids will be collected by an ophthalmic surgeon. Because of the small amounts of material involved, inoculation of plates and preparation of slides may need to be done at the patients' side. Laboratories should agree a protocol for the collection of specimens, inoculation of media, and transport to the laboratory with their local ophthalmologists, and supply kits for this purpose when required.

Under appropriate agreed protocols consider issuing corneal scrape kits to the ophthalmologists. They would scrape the cornea and send the blade in 1mL BHI broth in a bijou (inside an appropriate CE marked leakproof containers and placed in sealed plastic bags) and this is cultured.

Any available pus should be sampled as well as the lesion of interest.

It may also be useful to sample the contact lens itself and the contact lens case if still available and cleaning solutions.

Separate samples must be collected into appropriate transport media for detection of viruses or chlamydiae

25.3 Superficial mouth samples

Collect specimens before starting antimicrobial therapy where possible.

To assure that the preconditions of the sampling for oral infections are comparable it is advised that patients should not:

1. eat or drink within 2 hours

2. brush their teeth within 2 hours

3. use any mouth rinse of disinfectant within 2 hours prior to sampling

If possible, samples should be taken in the morning under fasting conditions.

Unless otherwise indicated collect each swab for bacterial and/or fungal culture and place in appropriate transport medium.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

Sample any lesions or inflamed areas using cotton tipped swabs. Samples of denture fitting surfaces should also be swabbed as these are more sensitive sites than the palatal mucosa to recover Candida species. The use of a tongue depressor or spatula may be helpful. Oral rinses can be useful to follow up level of colonisation. These are collected by rinsing with 10mL of sterile saline for one minute.

25.4 Nasal swabs

Collect specimens before antimicrobial therapy where possible.

Unless otherwise stated, swabs for bacterial and fungal culture should then be placed in appropriate transport medium.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

The washout or swab specimen will be collected by a specialist ENT surgeon.

25.5 Samples for Bordatella pertussis culture

Collect specimens before antimicrobial therapy where possible.

Swabs should be collected and transported in charcoal-based transport medium such as Regan-Lowe.

Pernasal swabs

A pernasal swab (Dacron or rayon with flexible ultrafine wire shaft) is inserted through a nostril and advanced along the floor of the nose until it reaches the nasopharynx. It has been suggested that the swab is held against the posterior nasopharynx for up to 30s or until the patient coughs. In practice, it is more likely that a patient will only be able to tolerate this for a few seconds.

Nasopharyngeal specimens

Sampling of nasopharyngeal secretions in patients with whooping cough may precipitate a paroxysm of coughing and cause obstruction of the airways. Resuscitation equipment must be available if whooping cough is suspected. The specimen collector should avoid exposure to direct coughs from the patient.

Nasopharyngeal exudate may be obtained using a suction catheter (No.8 French) inserted through the nose. The exudate is collected in a sterile plastic trap in which the specimen is transported to the laboratory, or in a sterile clear plastic universal container (30mL or 60mL, to BS 5213).

Note: Cough plates are not recommended.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

Unless otherwise stated, swabs for bacterial and fungal culture should then be placed in appropriate transport medium.

25.6 Throat related specimens

Collect specimens before antimicrobial therapy where possible.

Unless otherwise stated, swabs for bacterial and fungal culture should be placed in appropriate transport medium.

Throat swabs should be taken from the tonsillar area and/or posterior pharynx, avoiding the tongue and uvula.

Throat culture should not be taken if the epiglottis is inflamed as sampling may cause serious respiratory obstruction.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

Specimens should be transported and processed as soon as possible.

If processing is delayed, refrigeration is preferable to storage at ambient temperature.

Ideally, inoculation of specimens for N. gonorrhoeae should be made directly on to culture media at the time of collection and these should be incubated without delay. Transport time should be as short as possible. Samples should not be refrigerated if N. gonorrhoeae is suspected.

25.7 Faeces for Clostridium difficile

Collect specimens before antimicrobial therapy where possible.

Specimens from children <2 years old will be rejected

Specimen may be passed into a clean, dry, disposable bedpan or similar container, and transferred into a CE marked leak proof container. The specimen is unsatisfactory if any residual soap, detergent or disinfectant remains in the pan.

Formed stools are unsuitable for investigation for C. difficile. These should be rejected with the appropriate comment appended to the report.

A liquid specimen of 1-2ml is sufficient for culture and toxin detection. Repeat testing of samples if there is no indication within a 28-day period. This applies to repeat testing of positive results. On the contrary, a negative test, if symptoms persist, should be re-tested as it is known that a one-off negative can occur.

25.8 Investigation of swabs from skin and superficial soft tissue infections

Collect specimens before starting antimicrobial therapy where possible.

Unless otherwise stated, swabs for bacterial and fungal culture should then be placed in appropriate transport medium.

Samples of pus/exudate, if present, are preferred to swabs. If only a minute amount of pus or exudate is available, it is preferable to send a pus/exudate swab in transport medium to minimise the risk of desiccation during transport.

Sample a representative part of the lesion. Swabbing dry crusted areas is unlikely to yield the causative pathogen.

If specimens are taken from ulcers, the debris on the ulcer should be removed and the ulcer should be cleaned with saline. A biopsy or, preferably, a needle aspiration of the edge of the wound should be taken.

A less invasive irrigation-aspiration method may be preferred. Place the tip of a small needleless syringe under the ulcer margin and irrigate gently with at least 1mL sterile 0.85% NaCl without preservative. After massaging the ulcer margin, repeat the irrigation with a further 1mL sterile saline. Massage the ulcer margin again, aspirate approximately 0.25mL of the fluid and place in a CE marked leak proof container.

25.9 Pus and exudates

Collect specimens before antimicrobial therapy where possible.

Samples of pus are preferred to swabs. However, pus swabs are often received. When using a swab disinfect the superficial areas first. The deepest part of the wound should be sampled, avoiding the superficial microflora.

The specimen will usually be collected by a medical practitioner. Cleaning the site with sterile saline or 70% alcohol is recommended by some sources.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

Unless otherwise stated, swabs for bacterial and fungal culture should then be placed in appropriate transport medium.

Ideally, a minimum volume of 1mL of pus should be submitted.

Swabs are not the optimal sample type. However, if received, swabs should be well soaked in pus.

Numbers and frequency of specimen collection are dependent on clinical condition of patient.

25.10 Investigation of Bile

Collect specimens before antimicrobial therapy where possible.

Unless otherwise stated, swabs for bacterial and fungal culture should be placed in appropriate transport medium.

Bile may be collected in theatre or from a closed drainage system by aspiration with a needle and syringe.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

Ideally, a minimum volume of 1mL.

25.11 Investigation of tissues and biopsies from deep-seated sites and organs

Collect specimens before antimicrobial therapy where possible.

A medical practitioner will normally collect the specimen.

Collect specimens into appropriate CE marked leak proof containers and place in sealed plastic bags.

General

If specimen is small, place it in sterile water to prevent desiccation.

Note: Specimens received in formal saline are not suitable for culture.

Suspected Legionella species (lung tissue and biopsy)

If specimen is small place, it in sterile water to prevent desiccation.

Note: This would not be appropriate for specimens undergoing processing for diagnosis by molecular methods.

Note: Avoid the use of saline, as it is known to be inhibitory to Legionella species.

The specimen should, ideally, be large enough to carry out all microscopy preparations and cultures.

Minimum specimen size will depend on the number of investigations requested.

Specimens should be transported and processed as soon as possible.

If processing is delayed, refrigeration is preferable to storage at ambient temperature.

The volume of the specimen influences the transport time that is acceptable. Larger pieces of tissue maintain the viability of anaerobes for longer.

25.12 Investigation of intravascular cannulae and associated specimens

Collect specimens before starting antimicrobial therapy where possible.

Cannulae should be collected in appropriate CE marked leak proof containers and transported and processed as soon as possible.

Unless otherwise stated, swabs for bacterial and fungal culture should be placed in appropriate transport medium.

Correct specimen type and method of collection:

Cannulae

Disinfect the skin around the cannula entry site, remove cannula using aseptic technique, and ideally cut off 4cm of the tip which has been inside the patient into an appropriate CE marked leak proof container using sterile scissors. Place in sealed plastic bags for transport.

Note 1: skin disinfection procedures depend on local protocols and may vary.

Note 2: cannulae should only be sent if there is evidence of infection.

Swabs

Sample the inflamed area / exudate around the catheter insertion site using an appropriate swab.

Blood

At least two blood cultures should be obtained when catheter infection is suspected by peripheral venepuncture.

25.13 Investigation of Cerebrospinal Fluid Shunts

Collect specimens before antimicrobial therapy where possible.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

When a shunt is removed all three portions should be sent in separate microbiologically approved containers of the appropriate size. This will include the proximal catheter, a valve or reservoir, and a

distal catheter. CSF is usually obtained from the shunt reservoir and sent concurrently for investigation.

25.14 Investigation of Continuous Ambulatory Peritoneal Dialysis Fluid

Collect specimens before antimicrobial therapy where possible.

Unless otherwise stated, swabs for bacterial and fungal culture should be placed in appropriate transport medium.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

Receipt of the whole dialysate bag is preferable so that sampling under controlled laboratory conditions may be performed.

Where safe transport and receipt of the whole bag is considered impractical, withdraw fluid aseptically from the injection port of the plastic dialysate bag with a sterile needle and syringe and transfer to a microbiologically approved container.

If blood culture bottles are used, they should be inoculated aseptically with 5-10mL of dialysate according to local protocol agreed between the laboratory and clinical staff.

A volume of 10-50mL of fluid is considered suitable. Blood culture bottles may also be inoculated and submitted to the laboratory in addition to the pure sample.

25.15 Investigation of Fluids from Normally Sterile Sites

Collect specimens before antimicrobial therapy where possible.

Samples of fluid rather than swabs of the fluids are the preferred specimen type to facilitate comprehensive investigation.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

Ideally, a minimum volume of 1mL.

Large volume specimens such as peritoneal fluid and ascitic fluid may contain very low numbers of organisms which require concentration in order to increase the likelihood of successful culture.

Small volume fluids such as synovial fluids may be received in insufficient volumes. This may impede the recovery of organisms.

25.16 Investigation of Cerebrospinal Fluid

Collect specimens preferably before antimicrobial therapy is started, but this must not be delayed unnecessarily pending lumbar puncture and CSF culture.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

CSF is normally collected sequentially into three or more separate containers which should be numbered consecutively. Collect specimens in appropriate CE marked leak proof containers and transport specimens in sealed plastic bags.

Collection of an additional sample in a container with fluoride for glucose estimation is also recommended, although such tubes should be filled last because they may contain environmental bacteria which might otherwise contaminate samples for culture.

Common practice is to send the first and last specimens taken for microbiological examination and the second specimen for protein. The fluoride sample should not be sent to Microbiology. Ideally testing should be carried out on the last sample with the first one reserved as a backup.

Ideally a minimum volume of 1mL for each tube 1 and 3 taken for microscopy (in adults). When sample volume is below this it is possible to pool samples.

For Mycobacterium species, at least 10mL where possible.

Note: The larger the volume, the greater the cultural yield particularly in relation to M. tuberculosis investigations.

25.17 Investigation of Genital Tract and Associated Specimens

Collect specimens before antimicrobial therapy where possible.

Ideally, inoculation of specimens for N. gonorrhoeae is made directly to culture media at the bedside and incubated without delay. Transport time should be as short as possible.

For H. ducreyi direct inoculation of media ensures optimal recovery.

Unless otherwise stated, swabs for bacterial and fungal culture should be placed in appropriate transport medium.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

Samples should **not** be refrigerated if N. gonorrhoeae is suspected.

Genital tract swabs

Cervical and high vaginal swabs should be taken with the aid of a speculum. It is important to avoid vulval contamination of the swab. For Trichomonas, the posterior fornix, including any obvious candidal plaques should be swabbed. If pelvic infection, including gonorrhoea, is suspected, the cervical os should be swabbed.

For the specific diagnosis of BV, it is recommended that an air-dried smear of vaginal discharge is sent in addition to the swab.

Separate samples should be collected into appropriate transport media for detection of viruses or C. trachomatis.

High vaginal swabs

After the introduction of the speculum, the swab should be rolled firmly over the surface of the vaginal vault. The swab should then be placed in Amies transport medium with charcoal.

Cervical swabs

After introduction of the speculum to the vagina, the swab should be rotated inside the endocervix. The swab should then be placed in Amies transport medium with charcoal.

Urethral swabs

Contamination with micro-organisms from the vulva or the foreskin should be avoided. Thin swabs are available for collection of specimens.

The patient should not have passed urine for at least one hour. For males, if a discharge is not apparent, attempts should be made to "milk" exudate from the penis. The swab is gently passed through the urethral meatus and rotated. Place the swab in Amies transport medium with charcoal.

Intrauterine contraceptive devices (IUCDs)

The entire device should be sent.

Rectal swabs

Rectal swabs are taken via a proctoscope.

Throat swabs

Throat swabs should be taken from the tonsillar area and/or posterior pharynx avoiding the tongue and uvula.

Fluids and pus

These are taken from the fallopian tubes, tubo-ovarian and Bartholin's abscesses, etc... during surgery.

Fluids and pus – preferably a minimum volume of 1mL.

25.18 Investigations for Chlamydia, Gonorrhoea and Trichomonas testing by PCR

BD Molecular Swab Collection Kit: Endocervical swab specimen collection and transfer procedure

Clinician collection procedure

1. Do not collect specimen at the posterior fornix.
2. Lukewarm water may be used to warm and lubricate the speculum. Do not use lubricants.
3. Holding the swab by the cap, insert the swab into the cervical canal and rotate for 15 to 30 seconds.
4. Withdraw the swab carefully, avoiding contact with the vaginal mucosa.

Swab-to-tube transfer procedure

Specimens collected using the BD Molecular Collection Swab must be transferred to the BD Molecular Swab Sample Buffer Tube immediately after collection.

To transfer the sample:

1. Unscrew the cap of the BD Molecular Swab Sample Buffer Tube, taking care not to contaminate the contents or the outside of the tube. Immediately after collection, insert the BD Molecular Collection Swab into the tube so that the score mark indicated by the black line is at the lip of the tube.

2. Carefully break the shaft at the score mark and allow the swab to drop into the tube.

3. Tightly re-cap the tube.

4. Label tube with patient information, date, and time collected. Be careful not to obscure the barcodes on the tube.

Storage and transport

Endocervical swab specimens can be stored for a total of 21 days at 2–30 °C in BD Molecular Swab Sample Buffer Tubes.

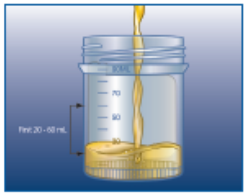
Approved for use with:

- BD CTGC2 for BD MAX™ System
- BD CTGCTV2 for BD MAX™ System

BD Molecular Urine Transport Kit

Urine specimen collection

Collection procedure



1. Have patient collect specimen in a sterile, plastic, preservative-free specimen collection cup.

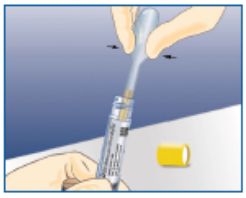
NOTE: Patient should not urinate for at least 1 hour prior to collection of specimen. Patient should collect the first 20 to 60 mL of voided urine.

2. Have the patient securely place the cap on the urine collection cup.

3. Label collection cup with patient identification, date, and time collected.

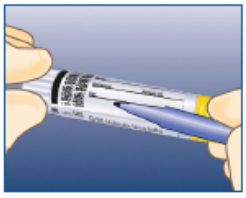
NOTE: Wear clean gloves when handling BD Molecular Urine Transport Kit components and urine specimens. If gloves come into contact with the specimen, immediately change gloves.

4. Uncap the BD Molecular Urine Sample Buffer Tube and the urine sample cup. Immediately after collection, use the graduated transfer pipette to gently mix the urine specimen. Then, use the pipette to aspirate approximately 2 mL of the urine specimen from the collection cup.



5. Transfer 2 mL of the urine specimen into the BD Molecular Urine Sample Buffer Tube. Use the graduations on the transfer pipette as a guide. DO NOT overfill or underfill the tube. **NOTE:** The transfer pipette is intended for use with a single specimen only.

6. Tighten the cap securely on the BD Molecular Urine Sample Buffer Tube. Invert the BD Molecular Urine Sample Buffer Tube 3 to 4 times to ensure that the specimen and reagent are well mixed.



7. Label the BD Molecular Urine Sample Buffer Tube with patient identification, date, and time collected. Be careful not to obscure any bar codes on the tube.

8. Transport to the testing laboratory following the storage and stability requirements.

Storage and transport

Urine specimens can be stored for a total of 21 days at 2–30 °C in BD Molecular Urine Sample Buffer Tubes.

Approved for use with:

- BD CTGC2 for BD MAX™ System
- BD CTGCTV2 for BD MAX™ System

BD Molecular Swab Collection Kit: Vaginal swab specimen clinician collection and transfer procedure

Clinician collection procedure

1. Collect swab prior to pelvic, speculum, or bimanual exam.
2. Gently slide the swab no more than 2 inches (5 cm) into the vagina. Do not use lubricants or other products containing substances such as carbomers.
3. Rotate the swab for 10 to 15 seconds.
4. Withdraw the swab without touching the skin outside the vagina.

Swab-to-tube transfer procedure

Specimens collected using the BD Molecular Collection Swab must be transferred to the BD Molecular Swab Sample Buffer Tube immediately after collection.

To transfer the sample

1. Unscrew the cap of the BD Molecular Swab Sample Buffer Tube, taking care not to contaminate the contents or the outside of the tube. Immediately after collection, insert the BD Molecular Collection Swab into the tube so that the score mark indicated by the black line is at the lip of the tube.

2. Carefully break the shaft at the score mark and allow the swab to drop into the tube.

3. Tightly re-cap the tube.

4. Label tube with patient information, date, and time collected. Be careful not to obscure the barcodes on the tube.

Assay	Condition	Duration
BD CTGC2 for BD MAX™ System BD CTGCTV2 for BD MAX™ System	2 – 30 °C	Up to 21 days
BD MAX™ Vaginal Panel	2 – 8 °C	Up to 14 days
	2 – 30 °C	Up to 8 days

Approved for use with:

- BD CTGC2 for BD MAX™ System
- BD CTGCTV2 for BD MAX™ System
- BD MAX™ Vaginal Panel

BD Molecular Swab Collection Kit: Vaginal swab specimen self-collection procedure

For clinician staff

- Do not use a lubricant with the BD Molecular Swab Collection Kit to aid in self-collection.
- Patient must collect their specimen before any vaginal exam is performed with a lubricant.
- Self-collected vaginal swabs are approved specimen types for BD CTGCTV2 for BD MAX™ System and BD MAX™ Vaginal Panel

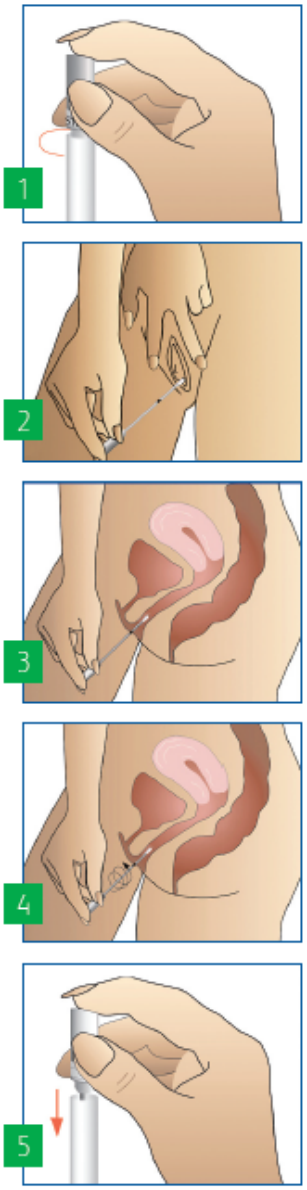
Patient instructions for self-collection

Please read all instructions before collecting specimens. If you have any questions about this procedure, please ask your doctor or nurse.

- Wash hands with soap and water. Rinse and dry.

1. Remove the sterile swab from its sheath, taking care not to contaminate the tip or shaft. Carefully pull the cap with attached swab off the tube. Do not touch the soft tip or lay the swab down. If you touch or drop the swab tip or the swab is laid down, discard the swab and request a new vaginal swab. Check for presence of the swab tip. If the swab has no tip, discard it and request a new vaginal swab.
2. Hold the swab by the cap with one hand so the swab tip is pointing toward you (Figure 2). With your other hand, gently spread the skin outside the vagina. Insert the tip of the swab into the vaginal opening (Figure 2). Point the tip toward your lower back and relax your muscles.
3. Gently slide the swab no more than 2 inches (5 cm) into the vagina (Figure 3). If the swab does not slide easily, gently rotate the swab as you push. If it is still difficult, do not attempt to continue self-collection; consult your clinician at this point.
4. Rotate the swab for 10 to 15 seconds (Figure 4).
5. Withdraw the swab without touching the skin outside the vagina. Place the swab in the sheath and cap the sheath securely (Figure 5).

- After collection, wash hands with soap and water, rinse, and dry. Return the swab in its sheath to the nurse or clinician as instructed.



25.19 Investigation of Specimens for Screening for MRSA

Please take one specimen from each of the following

Nose mucosal surface and **Groin or perineum.**

Additional separate specimens may be obtained from the following (if relevant):

• skin lesions and wound swab
• sites of catheters, including a catheter urine
• tracheostomy or other skin penetrating devices

Collecting a nasal swab:

Use a cotton-tipped culture swab moistened with sterile saline, sterile water or transport media from the swab.

DO NOT lubricate the swab with anything other than sterile saline, sterile water or media from the swab.

Insert the swab into the anterior nares (less then 1cm) and rotate it gently for approximately 10–15 seconds.

Collecting perianal or groin swab:

For perianal specimens (preferred specimen type), swab the perianal area (3) times (i.e. swab as if you are wiping after a bowel movement).

If you ask the patient to lie on their side and draw their knees up this may facilitate collection.

Groin- Rotate the moistened swab gently but firmly over the area on each side. One swab can be used.

25.20 Investigation of Faecal Specimens for Enteric Pathogens

Collect specimens soon as possible after onset of symptoms.

Collect specimens before antimicrobial therapy where possible.

Specimen may be passed into a clean, dry, disposable bedpan or similar container and transferred into an appropriate CE marked leak proof containers and place in sealed plastic bags. The specimen is unsatisfactory if any residual soap, detergent or disinfectant remains in the pan.

Faecal samples should be liquid or semi formed (ie take the shape of the container).

1-2g is sufficient for routine culture. Tests for quantifying food poisoning organisms may require up to 10g.

If more than one specimen is taken on the same day the specimens may be pooled.

25.21 Investigation of specimens other than blood for parasites

Collect specimens in appropriate CE marked leak proof containers and transport in sealed plastic bags, with the exception of perianal swab for E. vermicularis ova which should be transported in a sealed plastic bag.

In the case of CSF, any inoculated plates should also be transported in a robust, CE marked leak proof container.

Collect specimens before antimicrobial therapy where possible.

Faeces

Faeces should be presumably collected before antimicrobial or anti-diarrhoeal therapy where possible and between 10pm and midnight, or early in the morning, before defecation or bathing.

Perianal swab should be collected for E. vermicularis ova.

Fresh faeces specimens are essential for the examination of trophozoites.

Faeces may be passed directly to a sterile wide-mouthed CE marked leak proof container or may be passed to a clean, dry bedpan or similar container and transferred to a CE marked leak proof container.

Fresh, unpreserved specimens should be transported immediately. Cysts will not form once the specimen has been passed.

Protozoan trophozoites will not survive if the specimen dries out. Use of 10% formalin will kill trophozoites and renders them immotile. Liquid stool should therefore be examined ideally within 30 minutes from the time of collection without the addition of formalin (usually with a drop of saline) if trophozoites are sought. If delays cannot be avoided, the specimen should be preserved to avoid disintegration of the trophozoites.

Soft stools (which may contain both trophozoites and cysts) should preferably be examined within 1hr of passage.

Formed specimens (less likely to contain trophozoites) can be kept for up to one day, with overnight refrigeration if needed, prior to examination.

Microscopy for E. vermicularis ova

Perianal swab

Perianal specimens are best obtained in the morning before bathing or defecation. Three specimens should be taken on consecutive days before pinworm infection is ruled out.

Cotton-wool swab in dry container should be used for collection.

Spread buttocks apart and rub the moistened cotton wool swab over the area around the anus, but do not insert into the anus. Place cotton wool swab back in its container (no transport medium required). Occasionally, an adult worm may be collected from a patient and sent in saline or water for identification.

Urine (for S. haematobium)

In urinary schistosomiasis, very few ova are present in the urine. The number of ova in the urine varies throughout the day, being highest in urine obtained between 10am and 2pm. In patients with haematuria, eggs may be found trapped in the blood and mucus in the terminal portion of the urine specimen. It is therefore preferable to obtain total urine collected over the time period between 10am and 2pm. Alternatively, a 24hr collection of terminal samples of urine may be helpful. Sterile containers without boric acid must be used.

If the urine cannot be examined within an hour of collection, it is advisable to add 1mL of undiluted formalin to preserve any eggs that may be present.

CSF

Specimens will be obtained by specialist collection according to local protocols.

Tissues, biopsies, hydatid cyst and pus from abscesses, bile, duodenal/jejunal aspirates

Specimens will be obtained by specialist collection according to local protocols.

Sputum/bronchoalveolar lavage

Sputum from the lower respiratory tract expectorated by deep coughing is required. When the cough is dry, physiotherapy, postural drainage or inhalation of an aerosol before expectoration may be helpful.

Quantity and number of specimens

Faeces

Ideally three stool specimens collected over no more than a 10-day period. It is usually recommended that specimens are collected every other day. Unless the patient has severe diarrhoea or dysentery, no more than one specimen should be examined within a single 24-hour period, as shedding of cysts and ova tends to be intermittent.

If E. histolytica is suspected and the first three specimens are negative, consideration should be made for referral where available for molecular tests.

There are no prescribed limits for the size of sample required, as some laboratory procedures will require larger quantities than others.

Perianal swab for E. vermicularis ova

It is recommended that samples should be taken for at least four to six consecutive days. If the results of all these are negative the patient can be considered free from infection. In practice, more than one specimen is rarely received.

Urine (for S. haematobium)

Ideally, a minimum volume of 10mL is required.

CSF

Ideally, a minimum volume of 1mL is required.

Pus

Ideally, the entire volume of pus or a minimum of 1mL is required.

Tissues/biopsies

Ideally, the specimen should be large enough to carry out all investigations required.

Bile, duodenal/jejunal aspirates

Ideally, a minimum volume of 1mL is required.

Sputum/bronchoalveolar lavage

Ideally, a minimum volume of 2mL is required.

25.22 Investigation of Blood Cultures (for Organisms other than Mycobacterium species)

Collect specimens before antimicrobial therapy where possible.

Collect specimens as soon as possible after the onset of clinical symptoms. Although blood can be sampled at any time, drawing blood at, or as soon as possible after a fever spike is optimal, except in endocarditis where timing is less important.

Collect specimens in appropriate CE marked leak-proof containers and place in sealed plastic bags.

Consider the use of a single low volume bottle for small volumes of blood. If a low volume bottle is unavailable, use a single aerobic bottle. If necrotising enterocolitis is suspected and sufficient blood is obtained, inoculate a 'low volume' and an anaerobic bottle.

Note: The use of iodine-based disinfectants is not recommended for disinfection of the butyl rubber septum for some commercial systems as this may affect the septum's integrity.

Note: The use of blood collection adapters without 'winged' blood collection sets is not recommended as it is not possible to accurately judge the sample volume and there may be the potential for backflow of blood culture media to patient veins.

Note: If blood for other tests such as blood gases or ESR is to be taken at the same venepuncture, the blood culture bottles should be inoculated first to avoid contamination. It is preferable to take blood for culture separately.

Blood culture is a culture of blood collected from a single venepuncture site inoculated to one or multiple bottles.

A blood culture set is defined as one aerobic and one anaerobic bottle. For infants and neonates, a single aerobic bottle may be requested.

Quantity

Adults

Must be filled correctly 8-10mls per bottle / two sets to be taken if patient is septic / bottles must be sent to agreed testing lab to arrive within 4 hours of collection. **Note:** More than 2 bottles per set may be indicated.

Children and neonates

No more than 1% of the total blood volume.

Note: Do not exceed the manufacturer's recommended maximum volume for each bottle. Different manufacturers market different bottle formats.

Note: If the volume of blood is insufficient for two bottles, the aerobic bottle should be inoculated first and then the rest inoculated to an anaerobic bottle.

Number

The number and frequency of specimen collections is dependent on the clinical condition of the patient.

Take two consecutive sets from two separate venepuncture sites during any 24hr period for each septic episode. For neonates, take a single aerobic bottle or special low volume bottle.

Take two sets during the first hour in cases of severe sepsis prior to commencing antibiotic treatment, provided this does not significantly delay antibiotic administration.

Take at least three sets during a 24hr period where the patient has suspected infective endocarditis.

Procedure

Preparation

Ensure the patient is lying or sitting comfortably – place a pillow under their arm if possible.

1. Prepare blood collection set using aseptic non-touch technique (ANTT)

2. Position the patient's arm in a comfortable extended position that provides adequate exposure of the planned venepuncture area

3. Inspect the antecubital fossa or forearm for a suitable vein (it should ideally be visible without applying the tourniquet)

4. Apply the tourniquet with about 4-5 finger widths above the planned venepuncture site

5. Palpate the vein:

- Choose a vein has a sizeable lumen and feels "springy."
- Tapping a vein gently can make it easier to visualise and feel.

6. Thoroughly clean the site:

- Use 2% chlorhexidine in 70% isopropyl alcohol to disinfect the patient's skin and allow to dry.
- If the patient's skin is visibly soiled use soap and water to clean the site
- Once the skin has been disinfected you should not touch the site again (even with gloves on)

7. Wash your hands:

- Using alcohol gel and the World Health Organisation's hand hygiene technique
- If your skin is visibly soiled, you should wash your hands using soap and water.

8. Don apron and gloves

9. Remove caps from the blood culture bottles immediately prior to taking the sample and clean the top of each with a separate cleaning swab, allowing the alcohol to evaporate for 30 seconds before proceeding with bottle inoculation.

10. Place the sharps bin and equipment tray (containing your sample bottles, gauze and plaster) within easy reach in preparation for venepuncture.

Insertion of the needle

1. Prepare the blood collection system using ANTT (some blood collection systems require some assembly such as attaching a to the needle)

2. Unsheathe the needle

3. Anchor the vein from below with your non-dominant hand by gently pulling on the skin distal to the insertion site

4. Warn the patient of a sharp scratch

5. Insert the needle through the skin at a 30-degree angle or less, with the bevel facing upwards (you should feel a decrease in resistance as the needle enters the vein)

6. Advance the needle a further 1-2 mm into the vein after the decrease in resistance is felt

7. Lower and anchor the needle to the patient's skin

8. Use the other hand to attach the aerobic blood culture bottle to the adapter, piercing the blood culture septum and allowing the bottle to fill with 10ml of blood

9. Remove the aerobic bottle and then attach the anaerobic bottle, also filling it with 10ml of blood

- For adults, collect 8 - 10 ml; two or three blood cultures (by separate stick) per septic episode is sufficient. Paediatric blood cultures are not taken within Spire Healthcare

10. Release the tourniquet

11. Withdraw the needle and then apply gentle pressure to the site with some sterile gauze

12. Ask the patient to hold the gauze in place whilst you dispose of the needle into a sharp's container

13. Apply a dressing to the patient's arm (cotton wool / gauze / plaster)

14. Discard the used equipment into the appropriate waste bin

To complete the procedure

Thank patient and wash hands.

Fill out patient details on the sample bottles at the bedside - do not obscure the bottle bar codes with an addressograph label, do not remove any barcode labels, do not cover any part of the bottom of the bottle with labels and send the blood samples to the lab for testing. Document the following in the patient's notes:

- Reason for sample
- Time and date of sample
- Site the sample was obtained from.
- Your name, signature and contact details.

25.23 Investigation of bone marrow

Ideally, specimens for culture should be collected directly into blood culture bottles and transported in sealed plastic bags.

Additional bone marrow specimens should be submitted in an appropriate CE marked leak-proof containers and transported in sealed plastic bags.

Collect specimens before starting antimicrobial therapy where possible.

Specimens for culture should ideally be collected in blood culture bottles.

Additional specimens for direct culture, microscopy and molecular techniques should be collected in appropriate CE marked leak-proof containers.

As large a sample as possible should be obtained, with the caveat that volumes of >3mL are likely to be contaminated with peripheral blood which may have a dilution effect.

25.24 Investigation of Dermatological Specimens for Superficial Mycoses

Collect specimens before antifungal therapy where possible.

Specimens should be transported and processed as soon as possible.

Specimens should be kept at room temperature and transported and processed as soon as possible although, provided the samples are kept dry, the fungus will remain viable for several months.

Samples should be allowed to dry out and kept at room temperature.

Skin

Patients' skin and nails can be swabbed with 70% alcohol prior to collection of the specimen, this is especially important if creams, lotions or powders have been applied. The edges of skin lesions yield the greatest quantities of viable fungus. Lesions should be scraped with a blunt scalpel blade. If insufficient material can be obtained by scraping and being placed in a container, then a swab or sticky tape can be pressed on the lesion and transferred to a clean glass slide for transport to the laboratory ('stripping'). Samples in containers achieve the optimum results.

Nail

Good nail samples are difficult to obtain. It should be specified whether the sample is from the fingernails or toenails. Material should be taken from any discoloured, dystrophic or brittle parts of the nail. The affected nail should be cut as far back as possible through the entire thickness and should include any crumbly material. Nail drills, scalpels and nail elevators may be helpful but must be sterilized between patients. When there is superficial involvement (as in white superficial onychomycosis) nail scrapings may be taken with a curette. If associated skin lesions are present samples from these are likely to be infected with the same organism and are more likely to give a positive culture. Sample from associated sites should be sent in separate packets.

Hair

Samples from the scalp should include skin scales and hair stumps. Cut hairs are not suitable for direct examination as the infected area is usually close to the scalp surface. Scraping for direct examination is the preferable sample collection method, however plastic hairbrushes, scalp massage pads, swabs or plastic toothbrushes may be used to sample scalps for culture where there is little obvious scaling. If sufficiently long, hairs should be plucked with forceps and wrapped in black paper or commercial transport packs together with flakes of skin. Collect specimens other than swabs into appropriate CE marked leak-proof containers and place in sealed plastic bags.

25.25 Investigation of specimens for Mycobacterium species

Collect specimens before antimicrobial therapy where possible.

For the initial diagnosis of mycobacterial infection all specimens should be fresh and taken, whenever possible, before anti-tubercular treatment is started. 'Other' antimicrobials may also have significant anti-mycobacterial activity, notably the fluoroquinolones such as ciprofloxacin, levofloxacin or moxifloxacin, and the macrolides such as clarithromycin or azithromycin.

Use appropriate hazard labelling according to local policy.

Refer to the relevant HSE/COSHH guidelines on the collection and safe handling of specimens likely to contain Hazard Group 3 organisms.

Aerosol generating procedures, such as bronchoscopy or sputum induction, should be performed in an appropriately engineered and ventilated area.

Specimens other than blood

Specimens other than blood or bone marrow should be refrigerated if transport to the laboratory or specimen processing is delayed for >1hr.

Gastric washings

Gastric washings should be neutralised by adding approximately 100mg of sodium carbonate to approximately 50mL of the specimen if processing is delayed for >4hr.

Blood and bone marrow cultures

Blood and bone marrow aspirate cultures should be transported and loaded into the automated culture system as soon as possible.

Note: These samples should not be collected in EDTA tubes as this inhibits the growth of mycobacteria. Lithium Heparin tubes are recommended.

Correct specimen type and method of collection

Sputum specimens

Sputum specimens should be relatively fresh (less than 1 day old) to minimise contamination. Purulent specimens are best. Two to three samples of fffl5mL should be collected approximately 8-24 hours apart with at least one from early morning.

Samples taken early morning (that is, shortly after patient waking) have the greatest yield. When the cough is dry, physiotherapy, postural drainage or inhalation of nebulised saline ('sputum induction') before expectoration may be helpful.

Note: Decontaminated and neutralised samples are not recommended as they may lose viability during transit to the laboratory.

Bronchoalveolar lavage/bronchial washings

These may be sent if spontaneous or induced sputum is unavailable or if such specimens are AFB smear negative.

Note: Contamination of the bronchoscope with tap water, which may contain environmental Mycobacterium species, should be avoided. Minimum sample size is preferably 5mL.

Gastric washings

Gastric washings are usually used for children where there are problems obtaining sputum. Young children will often swallow their respiratory secretions rather than cough them up. Induced sputum is considered preferable to gastric washings, if possible. Collect samples early in the morning (before breakfast) on 3 consecutive days. Preferably, a minimum volume of 5mL should be collected. Aspirates should be promptly delivered and processed to avoid acidic deterioration of organisms (see under neutralisation, section 4.5). Results of direct microscopy on gastric washings can be misleading because other acid-fast bacilli are normally present in the stomach.

Sterile site body fluids

Sterile site body fluids (CSF, pleural fluid, etc) will normally not require decontamination, and can be inoculated directly to neutral media. However, these samples can be assessed for contamination by setting up purity plates. If contaminated, they can be treated with acid and if pure they can be directly inoculated. Collect aseptically as much (for example >6mL in adults) CSF sample as possible into a CE Marked leak proof container in a sealed plastic bag. If only a small volume is available after initial lumbar puncture, and the findings of cell counts and protein suggest TB meningitis, a second procedure should be considered to obtain a larger volume to improve chances of achieving positive cultures.

It should be noted that pleural or pericardial fluids are not very sensitive samples for the detection of M. tuberculosis, and that a concurrent pleural or pericardial biopsy taken with the fluid is more useful. A negative result on these fluids does not rule out the diagnosis.

Urine specimens

Urine specimens should be collected in the early morning on three consecutive days in a CE marked leak proof container (that does not contain boric acid) and placed in a sealed plastic bag. If there are no appropriate containers for a whole Early Morning Urine (EMU) sample, a midstream EMU sample is an acceptable, but not ideal alternative.

Skin, bone, and tissue including post mortem specimens

Specimens of such type should be homogenised, with the exception of bone. It may be necessary to select and cut out a suitable piece of tissue if a large piece is received. Similarly, some pieces of tissue may need to be 'minced' using sterile scissors and forceps before they can be successfully homogenised. Specimens should be collected aseptically and placed in a CE Marked leak proof container without preservatives in a sealed plastic bag, and sterile distilled water added to prevent desiccation. A caseous portion should be selected if possible: the majority of organisms will be found in the periphery of a caseous lesion.

Tissue biopsy specimens received in formalin are unacceptable and should not be processed.

Faecal samples

Mycobacterium tuberculosis and Mycobacterium avium-intracellulare group have been isolated from faeces, notably in patients who are immunocompromised such as those with HIV-AIDS. However, NTMs can often be isolated from healthy individuals, representing colonisation only. If M. tuberculosis is isolated, this may well be due to the ingestion of infected respiratory secretions rather than intestinal disease. The isolation procedure is unreliable and has a low success rate due to the heavy contamination with other bacteria; hence culturing faecal samples for mycobacteria is not

recommended in this UK SMI. M tuberculosis and NTMs, including MAI, may be isolated from blood cultures in disseminated infection.

Pus or pus swabs

Pus, or pus swabs, should be collected aseptically, and the largest practical sample submitted in CE marked leak-proof container in a sealed plastic bag. Pus is the sample type of choice. Swabs are less preferable as mycobacteria, if present, may adhere to the swab rather than be transferred successfully to the culture media.

Bone marrow

As large a sample of bone marrow as possible should be aspirated and added directly to the culture medium in accordance with the manufacturer's instructions.

Blood

For more information on blood cultures, refer to Blood Culture section

Note: EDTA, even in trace amounts, inhibits the growth of some Mycobacterium species and so is not acceptable.

25.26 Investigation of urine

There is a patient information leaflet available should you wish to give a patient instruction to perform this from home Ref: SPS-GP-WI1403, available in the Pathology section of the Spire Clinical Intranet

Collect specimens before antimicrobial therapy where possible.

Mid-stream urine (MSU)

MSU is the recommended routine collection method.

Periurethral cleaning is recommended (water is considered sufficient).

The first part of voided urine is discarded and, without interrupting the flow, approximately 10mL is collected into a CE marked leak proof container. The remaining urine is discarded. If boric acid preservative is used, the container is filled up to the mark in a similar manner and the contents mixed well.

Clean-catch urine

A reasonable alternative to MSU.

Periurethral cleaning is recommended. The whole specimen is collected and then an aliquot sent for examination in a CE marked leak proof container.

Suprapubic aspirate (SPA)

Urine is obtained aseptically, directly from the bladder by aspiration with a needle and syringe. The use of this invasive procedure is usually reserved for clarification of equivocal results from voided urine (eg in infants and small children). Ultrasound guidance should be used to show presence of urine in the bladder before carrying out SPA.

Catheter urine (CSU)

The sample may be obtained either from a transient ('in and out') catheterisation or from an indwelling catheter. In the latter case, the specimen is obtained aseptically from a sample port in the catheter tubing or by aseptic aspiration of the tubing. The specimen should not be obtained from the collection bag.

Bag urine

Used commonly for infants and young children. The sterile bags are taped over the freshly cleaned and dried genitalia, and the collected urine is transferred to a CE marked leak proof container. There are frequent problems of contamination with this method of collection.

Pad urine

An alternative to collecting bag urine from infants and young children. After washing the nappy area thoroughly, a pad is placed inside the nappy. As soon as the pad is wet with urine (but no faecal soiling), push the tip of a syringe into the pad and draw urine into the syringe. Transfer specimen to a CE marked leak proof container. If difficulty is experienced in withdrawing urine, the wet fibres may be inserted into the syringe barrel and the urine squeezed directly into the container with the syringe plunger.

Ileal conduit – urostomy urine

Urine is obtained via a catheter passed aseptically into the stomal opening after removal of the external appliance. Results from this type of specimen may be difficult to interpret.

Cystoscopy urine

Urine is obtained directly from the bladder using a cystoscope.

Ureteric urine

Urine samples are obtained from one or both ureters during cystoscopy via ureteric catheters inserted from the bladder.

Urine samples may also be sent following nephrostomy, other surgical procedures, or bladder washout.

Meares and Stamey localisation culture method for diagnosis of prostatitis

The following specimens are collected:

- The initial 5–8mL voided urine (urethral urine)
- MSU (bladder urine)
- Expressed prostatic secretions following prostatic massage
- The first 2–3mL voided urine following prostatic massage

Urine for S. Typhi and S. Paratyphi cultures

Any urine samples from suspected cases or contacts of cases. Please ensure suspicion of this is indicated in the Clinical details on the sample request form

25.27 Investigation of bone and soft tissue associated with osteomyelitis

Collect specimens before starting antimicrobial therapy where possible.

Unless otherwise stated, swabs for bacterial and fungal culture should be placed in appropriate transport medium.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

Direct collection in theatres can be placed into a CE marked leak proof container with Ringer's or saline solution and Ballotini beads (as an option) which is placed into sealed plastic bags. However, microbiology and histology specimen pots can be confused leading to difficulties in processing samples.

In surgery for chronic osteomyelitis collection of multiple (4-5) intra-operative samples with separate instruments (usually sterile forceps and scalpel) is important. Duplicate samples must be taken for histology. Swabs are not recommended.

Minimum specimen size will depend on the number of investigations requested.

Specimens should be transported and processed as soon as possible. To enable timely clinical management, samples should be processed urgently.

The Infectious Diseases Society of America (IDSA) guidelines recommend that specimens should be transported at room temperature, and should be processed immediately, and within a maximum of 2hr.

If processing is delayed, refrigeration is preferable to storage at ambient temperature.

If possible stop all antibiotics at least 2 weeks prior to sampling and consider not giving routine surgical prophylaxis until after sampling.

The volume of the specimen influences the transport time that is acceptable. Larger pieces of bone may maintain the viability of anaerobes for longer. Samples should not however exceed the size of the CE marked leak proof containers available.

25.28 Investigation of orthopaedic implant associated infections

Collect specimens before antimicrobial therapy where possible.

If possible stop all antibiotics at 2 weeks prior to sampling and consider not giving routine surgical prophylaxis until after sampling.

Collect specimens into appropriate CE marked leak-proof containers and place in sealed plastic bags.

To enable timely clinical management, samples should be processed urgently.

Swabs are to be discouraged. However if sent, swabs for bacterial and fungal culture should be placed into appropriate transport medium and transport in sealed plastic bags.

For aspirates and radiologically guided biopsies, it is usually only possible to send one sample to microbiology. In theatres, multiple (three to five) samples should be taken using separate instruments for microbiology. An equivalent set of samples should be taken for histology.

Specimen size should approximate 1mL.

Small volumes of synovial fluid (<1mL) may impede the recovery of organisms.

Specimens should be transported and processed as soon as possible.

The Infectious Diseases Society of America (IDSA) guidelines recommend that specimens should be transported at room temperature, and should be processed immediately, and within a maximum of 2hr.

If processing is delayed, refrigeration is preferable to storage at ambient temperature

In surgery for chronic osteomyelitis collection of multiple (4-5) intra-operative samples with separate instruments (usually sterile forceps and scalpel) is important. Duplicate samples must be taken for histology. Swabs are not recommended.

25.29 Screening for Neisseria meningitidis

Collect specimens before antimicrobial therapy where possible.

Specimens should be transported and processed as soon as possible.

Recovery of meningococci is compromised if culture is delayed.

If processing is delayed, refrigeration is preferable to storage at ambient temperature.

Direct plating when the swab is taken should be considered.

25.30 Investigation of gastric biopsies for Helicobacter pylori

Collect specimens before starting antimicrobial therapy where possible.

Ideally biopsies should be taken before antimicrobial therapy is begun, however a 'test and treat' strategy for the diagnosis of H. pylori is recommend by NICE and therefore most samples referred for culture will be due to treatment failure. A period of at least two weeks should have elapsed since the last dose of antimicrobial therapy before the collection of the specimen.

Gastric biopsy specimens are usually taken from the gastric antrum at endoscopy, and sometimes from the main body of the stomach depending on location of inflammation. Duodenal biopsies will be taken in cases with duodenal ulcers.

Numbers and frequency of specimen collection are dependent on clinical condition of patient at the discretion of the endoscopist as it depends on the individual patient.

25.31 Investigation of bronchoalveolar lavage, sputum and associated specimens

Where possible all specimens should be fresh and taken before antimicrobial treatment is started.

Early morning freshly expectorated sputum is recommended for Mycobacterium

Culture for Legionella species may still be successful after antimicrobial therapy has been started For sputum specimens the material required is from the lower respiratory tract, expectorated by deep coughing. When the cough is dry, physiotherapy, postural drainage or inhalation of an aerosol before expectoration may be helpful. Saliva and pernasal secretions are not suitable.

Early morning specimens for examination of Mycobacterium species should ideally be collected on at least 3 consecutive. BAL and associated specimens need specialist collection according to local protocols.

Unless otherwise stated, swabs for bacterial and fungal culture should then be placed in appropriate transport medium.

Collect specimens other than swabs into appropriate CE marked leak proof containers and place in sealed plastic bags.

Sputum - Ideally, a minimum volume of 1mL.

BAL - It is difficult to be specific on volume required; in principle, as large a volume as possible is preferred.

Numbers and frequency of specimens collected are dependent on clinical condition of patient.

Note: Spire Laboratory Medicine do not perform Medico-legal work. Any specimens requiring a chain of custody cannot be processed.

Collect specimens before starting antimicrobial therapy where possible.

BAL and sputum should be processed promptly to give the best opportunity to culture pathogenic organisms and reduce the risk of overgrowth with contaminants. If processing has to be delayed up to 24 hours, refrigeration is preferable to storage at ambient temperature. If specimens are not processed on the same day that they are collected, this should be noted on the report and interpretation of results should be made with care

25.32 Detection of Carriage of Group B Streptococci

Collect specimens before antimicrobial therapy where possible.

Unless otherwise stated, swabs for bacterial and fungal culture should then be placed in appropriate transport medium.

Rayon or Dacron, Fibre or Flocked swabs, with non nutritive transport media (eg Amies or Stuart's), preserve the viability of the organism by providing moisture, and buffering to maintain the pH.

Specimen(s) for culture may be collected either by the physician or other qualified caregiver (or may be self-collected by the patient, with appropriate instruction). This involves swabbing the distal vagina (vaginal introitus), followed by the rectum.

A single swab for both sites of collection is rational but two different swabs can be used. Because lower vaginal as opposed to cervical cultures are recommended, cultures should not be collected by speculum examination.

25.33 Detection of Enterobacteriaceae producing extended spectrum β-lactamases

Collect specimens before starting antimicrobial therapy where possible.

Unless otherwise stated, swabs for bacterial culture should be placed in appropriate transport medium

Collect specimens into appropriate CE marked leak proof containers and place in sealed plastic bags.

There should be visible faecal material on the rectal or peri-rectal swabs taken

25.34 Detection of bacteria with carbapenem-hydrolysing β-lactamases carbapenemases)

Screening specimens including stool, rectal or peri-rectal swabs, any clinical specimens such as blood, wounds or urine

The potential for spread of acquired carbapenemases means that an indicator carbapenem should ideally be tested against all clinically-significant Gram negative bacteria. Minimum testing should include isolates from 'high-risk' patients and settings in accordance with current national guidance, such as patients who have been in-patients in a hospital abroad or in a hospital in the UK known to have problems with spread of CPE or patients known to have been previously colonised or infected

with CPE, when the information has been provided on the request form accompanying the specimen and any isolates found grossly resistant to co-amoxiclav.

25.35 Investigation of specimens for ectoparasites

Specimens should be handled with care to avoid damage to taxonomic features required for identification. Specimens should be collected directly from the patient whenever possible or from the environment in which the patient lives. Specimens should be collected into a CE marked leak proof container in a sealed plastic bag.

Ideally specimens should be killed before postage. All soft-bodied specimens (lice, fleas, bedbugs, ticks and fly larvae) should be killed by immersion in hot water, transferred to and transported in 70% ethanol. All hard bodied specimens (including beetles and adult flies) should be killed by exposure to ethyl acetate vapour and transported dry. Mites may be killed and transported in 70% ethanol. Refer to the appropriate section for further details. A short patient history and details of any foreign travel should be included.

Inner packaging containing the specimen should be examined prior to opening to ascertain if the insect/arachnid is still living. Living specimens should be killed with hot water or ethyl acetate vapour prior to examination. Where there is a risk that live specimens may escape when the container is opened, they should be chilled in a refrigerator before processing.

To ensure specimens are suitable for taxonomic anatomy live leeches should be narcotised in 15% ethanol. When fully narcotised the leeches should be extended flat for fixing in 70% ethanol or 5% formalin. Specimens dropped live to formalin or concentrated ethanol contract violently, harden and are useless for identification