

Histopathology User Manual



Hisopathology Laboratory Handbook / User Manual (Intranet / Internet information) - Version: 1.10. Index: Histopathology 5211. Printed: 18-Jan-2025 11:59

Department of Paediatric Histopathology

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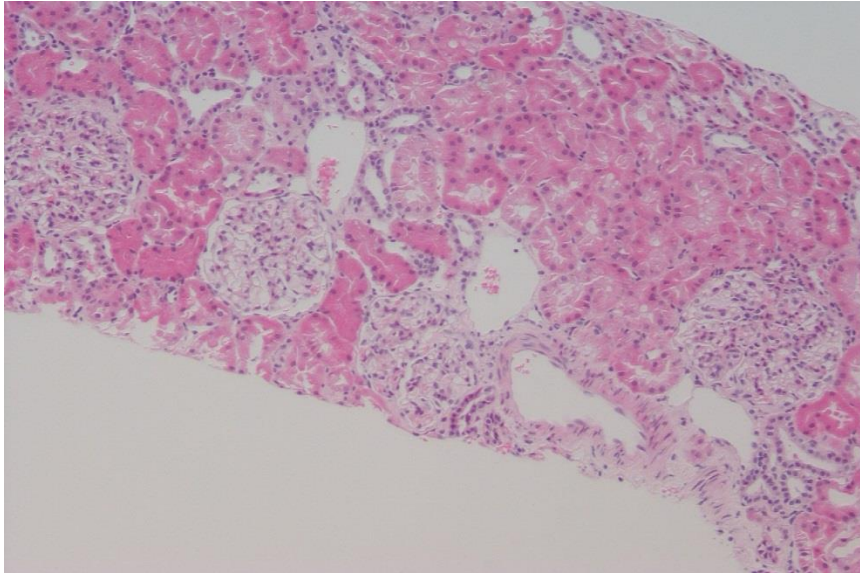
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Department of Paediatric Histopathology

1. Introduction

Histopathology is the study of disease process within cells, tissues and organs.



The Paediatric Histopathology Department at Alder Hey Children's NHS Foundation Trust provides a specialist surgical histopathology service and perinatal autopsy and placental service to the Perinatal Network of obstetric centres across Merseyside, Cheshire and Isle of Man, additionally with referrals from North Wales, Belfast and further afield.

The Histopathology department is a UKAS accredited medical laboratory, No 9091, and is licensed by the Human Tissue Authority (HTA).

We are committed to providing a high quality and timely regional histopathology service and to contribute to the HM Coroner's service and Children's Cancer and Leukaemia Group (CCLG) tumour bank.

We provide the following diagnostic services:

Histopathology
Broncho-alveolar lavage, sputum and CSF cytology
Neuropathology

The successful examination of samples depends primarily upon the quality of the sample taken, timely transportation to the laboratory and processing of the sample.

The service is led by specialist Consultant Paediatric and Perinatal Pathologists experienced in the diagnosis of disease in children, which is crucial to the management of further investigations and treatment.

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The Histopathology laboratory and mortuary provide a professional and efficient patient and family-centered service led by experienced Biomedical Scientists and Anatomical Pathology Technologists.

Continuing Professional Development, training and education is supported by membership of professional bodies including the Royal College of Pathologists and the Institute of Biomedical Science. All qualified laboratory staff are registered with the Health Care Professions Council.

The department provides education and support to students including workplace, undergraduate, postgraduate, medical students and specialist registrars.

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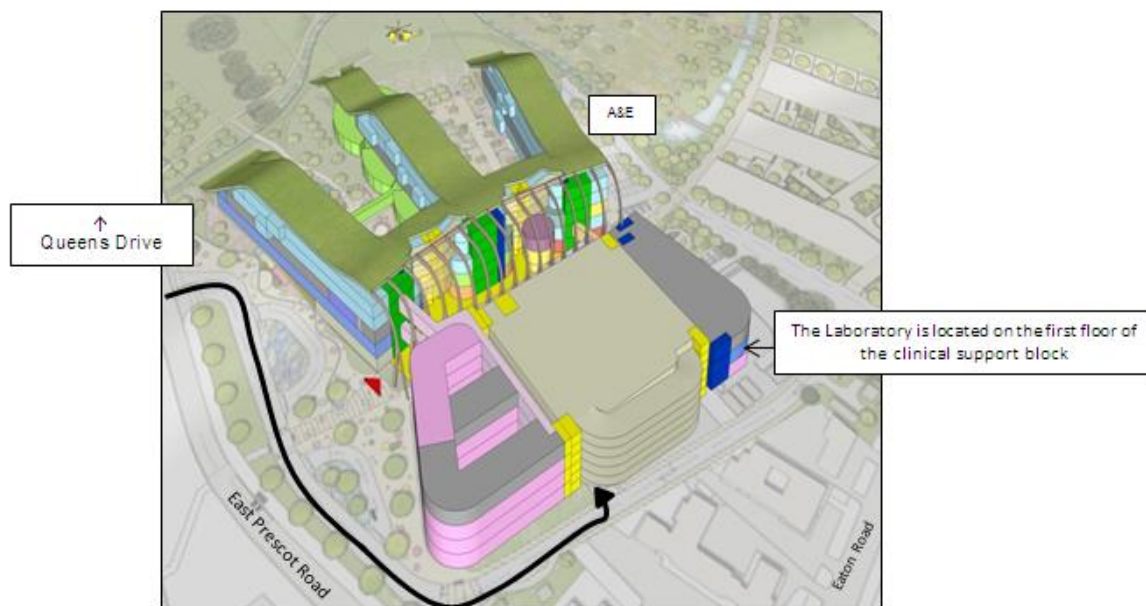
2. Contact details

2.1 Address:

Histopathology Department
Alder Hey Children's NHS Foundation Trust
Eaton Road
West Derby
L12 2AP
(Use L14 5AB on sat-navs for East Prescott Road car park)

Location

Histopathology forms part of Laboratory Medicine (Pathology) which is located on the first floor, Zone 5 of the Children's Health Park opposite the Institute in the Park. The mortuary and bereavement suites are co-located with Laboratory Medicine on the ground floor.



There is a multi-storey car park accessed via East Prescott Road.

Telephone: 0151 228 4811 then request the extension from the key contacts listed below

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2.2 Opening hours

Monday to Friday

Laboratory - 09.00 to 17.30

The consultants provide a 24/7 clinical advice service and can be contacted via switchboard out-of-hours for urgent enquiries.

The Consultant Neuropathologists are available on-site Tuesdays and Thursdays only.

Mortuary - 08.30 to 17.00

The mortuary provides a 24/7 service. Contact is via switchboard out-of-hours.

2.3 Key contacts

Personnel	Title	Extension
Clinical Advice		
Dr. Daniel Hurrell	Consultant Paediatric and Perinatal Pathologist	3656
Dr. Rajeev Shukla	Consultant Paediatric and Perinatal Pathologist	3658
Dr. Jo McPartland	Consultant Paediatric and Perinatal Pathologist	2704
Dr. William Simmons	Consultant Paediatric and Perinatal Pathologist (Head of Department and DI for HTA Post Mortem License)	3653
Dr. Srinivas Annavarapu	Consultant Paediatric and Perinatal Pathologist	2275
Dr. Michael Staunton	Consultant Paediatric and Perinatal Pathologist	
Neuropathology Clinical Advice		
Dr. Daniel du Plessis	Consultant Neuropathologist	3653
Dr. Federico Roncaroli	Consultant Neuropathologist	3653
Technical Advice		
Mrs. Pamela Ashton	Histopathology Laboratory Manager & Governance & Quality Lead for Pathology	3615
Mrs. Sarah Eykelenboom	Senior Biomedical Scientist	3505
Mrs. Emma Moss	Senior Biomedical Scientist	3505
Mortuary Advice		
Mrs. Kate Cannon	Lead Anatomical Pathology Technologist	2219
Administrative Advice		
Mrs. Patricia Flaherty	Histopathology Administrative Team Leader	3656/2081

Confidential patient information for the attention of the administrative team should be sent via NHS.net. Please email: Histopathology.Alderhey@nhs.net

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3. Histopathology Service

Please contact the laboratory regarding sending samples that are not covered in the repertoire below. In order to obtain timely results, the quality of data provided with the specimen should be appropriate to allow for accurate diagnosis.

3.1 Sample Requirements

At least three identifiers are required together with the specimen site on both the pot and request including:

- Patient's full name or unique coded identifier
- Hospital number and/or NHS number
- Date of birth
- Date and time, nature of sample, including qualifying details, e.g. left, distal etc. (especially if more than one sample per request is submitted) are also required on the sample container

Samples will not be processed until errors or omissions have been resolved. To avoid **sample mix up**, specimen containers should not be labelled in advance of a procedure.

For further information please refer to 'RM50 – Labelling, packaging, handling and delivery of laboratory specimens' policy'.

Factors known to significantly impact the performance or interpretation of the results:

- Inadequate sampling, resulting in a repeat sample.
- Labelling errors, resulting in a delay to specimen processing and reporting.
- Insufficient/inadequate clinical information, resulting in a delay to specimen processing and reporting.
- Poor fixation (e.g due to a delay in placing the specimen in formalin, insufficient volume of fixative, refrigerating specimens in formalin), resulting in an adverse effect on specimen integrity and subsequent histological examination.
- Delay transporting fresh specimens to the laboratory, resulting in an adverse effect on specimen integrity and subsequent histological examination.
- Failure to disclose high risk status of the specimen, resulting in staff being put at unnecessary risk of infection.
- Samples that are required to be fresh (e.g. muscle biopsies, skin/renal for immunofluorescence, samples for intraoperative reporting) being placed into formalin, resulting in necessary enzyme/immunofluorescence examinations not being possible, or a rapid report not being possible.
- Failure to contact the laboratory in advance to book a frozen section or muscle biopsy, may result in a delay or inability to perform, due to lack of availability of technical and/or consultant staff.

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3.2 Requesting requirements

As well as the mandatory labelling criteria for samples and request forms listed above the request will also provide:

- Identity and contact information of the requestor
- Correct date and time of sample collection
- Clinical information including relevant medication
- If the sample is to be referred on to a specialist centre then the full address and the centres request form is required.

It is also desirable for the requests to contain:

- Patients gender
- Patient's address including postcode
- Patient's location and destination for report
- Patient's consultant, GP or name of requesting practitioner
- Practitioner's contact number (bleep or extension)
- Investigation(s) required
- Signature of person taking the sample
- Indication whether the sample is 'fresh' (i.e. not transported in formalin)

ALL histopathology and cytology samples must be brought in a specimen transport container directly to Pathology specimen reception (**not via the pod system**).

*ALL fresh samples must be **pre-booked** and arrive at the laboratory **before 4pm**. They must be clearly labelled as '**FRESH**'. See repertoire for more information on relevant samples.

Urgent samples should be clearly marked and in the case of fresh tissue brought immediately to the Histopathology Department.

Any samples that are needed for multiple disciplines (e.g. histopathology, microbiology, haematology, biochemistry), should be split in theatre and clearly labelled which specialty each sample is for. The laboratory can be contacted for advice on what samples are required for each discipline, and how to split them. If the primary sample is divided in the laboratory, this will be recorded on Meditech.

**The histopathology laboratory are unable to accept fresh samples, including muscle biopsies, or undertake cryotomy on tissue designated as being "High Risk" (HIV, hepatitis, CJD etc.) Any such requests should be referred to the Consultant Histopathologist or Neuropathologist.*

All internal requests must be generated via Meditech. There are Meditech user guides for staff available on the intranet. Problems with placing orders should be directed to the IT department. Training for all clinicians ordering Tests is available from the meditech/IT team.

In the event of meditech downtime a paper Histology meditech downtime form must be used.

Advice on completing or printing a request form can be obtained from the IT department.

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Samples will not be accepted unless an order has been generated and the minimum identification criteria are placed on the container and request form. The specimens must be labelled correctly otherwise they will be returned. Laboratory staff or pathologists will communicate with the requesting clinician if any test request requires clarification.

Pre-examination processes can influence the intended examination. If a compromised clinically critical or irreplaceable sample is accepted, which did not meet the specimen acceptance criteria, after consideration of the risk to patient safety, the final report shall indicate the nature of the problem and, where applicable, advise caution when interpreting results that may be affected. This should be a rare event and consideration should be given to requesting a repeat sample if possible.

Repertoire:

3.3 Routine surgical specimens

- Sample should be placed in an appropriately sized container immersed in at least 10 times the volume of 10% neutral buffered formalin soon after excision.
- Smaller pre-filled pots are supplied by theatres, larger pots can be collected from laboratory specimen reception.
- Biopsy samples should be placed in sealed bags.
- All pots should be transported in a specialist transport box containing absorption pads.
- Pre-filled pots should be discarded if formalin expiry dates are exceeded.
- For consistent quality, the preferred supplier of formalin is Genta Medical UK Ltd.
- All suspected **high-risk** samples must be double bagged and clearly labelled as a biohazard. High risk samples will require prolonged fixation, therefore, a delay in reporting may occur.

3.4 Fresh specimens for frozen section

- All frozen section requests must be **pre-booked** with the laboratory (ext. 3505) **and** discussed with the Pathologists prior to sending to the laboratory.
- Service provision cannot be guaranteed for unbooked samples or those that arrive between 4.00 pm and 5:30pm.
- **There is no intraoperative frozen section diagnostic service outside normal working hours.**
- A **contact number** must be written on the request form to enable the pathologist to issue a verbal report.

To arrange a frozen section:

1. The request must be discussed with the on-call pathologist in advance of sending the specimen.
2. Contact the laboratory on ext 3505 and provide the following details:
 - Patient details (including AH number)

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- Theatre
- Tissue to be sampled
- Estimated time of arrival

To send a frozen section:

1. Wrap the sample in saline soaked gauze, saline soaked biopsy paper or saline soaked filter disc, and place the specimen in a universal or appropriately sized container. (DO NOT add formalin).
2. Ensure pot is fully labelled with a minimum of 3 patient identifiers.
3. Complete a histopathology request, including a **contact telephone/bleep number** for receipt of the report, and print the A4 histopathology request form.
4. Place the specimen pot and request form in a transport container and arrange immediate delivery to the histopathology laboratory.
5. Advise specimen reception staff that the sample is fresh and is for a frozen section, therefore it is to be taken directly to histopathology.

If a pre-booked frozen section is no longer required, please let us know.

3.5 Fresh tumour samples

- All fresh samples must be **pre-booked** with the laboratory (ext. 3505).
- Fresh samples should **never** be sent to the laboratory out of hours without prior agreement from the on-call pathologist.
- Service provision cannot be guaranteed for unbooked samples or those that arrive post 4.00 pm.
- Samples requiring genomic testing (including WGS) should be discussed with the pathologist prior to the procedure.
- If the sample is taken out of hours the surgeon/radiologist should wrap 3-4 fresh cores in saline soaked biopsy paper and place them into a sterile universal container. This can be kept refrigerated until the next working day. The remainder of tissue should be placed into formalin.
- For out of hours tumour resections, the surgeon must contact the on-call pathologist via switchboard; in most instances, the pathologist will instruct them to wrap the specimen saline soaked gauze and refrigerate it until the following day, when it can then be transferred to the laboratory.

To arrange sending a fresh sample:

1. Contact the laboratory on ext 3505 and provide the following details:
 - Patient details (including AH number)
 - Theatre
 - Tissue to be sampled
 - Estimated time of arrival

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To send a fresh sample:

1. Wrap the sample in saline soaked gauze or saline soaked biopsy paper and place the specimen in a universal or appropriately sized container. (DO NOT add formalin).
2. **DO NOT** fill the specimen pot with saline.
3. **The specimen pot and request form must be labelled "FRESH".**
4. Ensure pot is fully labelled with a minimum of 3 patient identifiers.
5. Complete a histopathology request and print the A4 histopathology request form.
6. Place the specimen pot and request form in a transport container and arrange immediate delivery to the histopathology laboratory.
7. Advise specimen reception staff that the sample is fresh, therefore it is to be taken directly to histopathology.

If a pre-booked fresh sample is no longer required, please let us know.

3.6 Fresh rectal biopsy

- Rectal biopsy for **initial assessment** of Hirschsprung's Disease:
 - Fresh biopsies should be placed on a saline soaked filter disc in a clean container clearly identifying the site e.g. 2cm, 3cm.
 - Ideally two deep biopsies should be taken at each site.
 - All biopsies for assessment of Hirschsprung's disease should be **pre-booked** with the laboratory (ext 3505) and arrive **no later than 4pm**.
 - **Refer to protocol for sending fresh samples in section 3.5.**
- Pull-through biopsies on **confirmed cases** of Hirschsprung's Disease:
 - Fresh biopsies should be placed on a saline soaked filter disc in a clean container clearly identifying the site e.g. 2cm, 3cm.
 - All pull-through biopsies must be **pre-booked** with the laboratory (ext 3505) and discussed with a Pathologist. They must be scheduled as early as possible, with the final biopsy arriving **no later than 4pm**.
 - **There is no out of hours intraoperative frozen section diagnostic service.**
 - **Refer to protocol for sending fresh tissue for frozen section in section 3.4.**

3.7 Medical (non-tumour) renal biopsies

- All medical renal biopsies must be **pre-booked** (Ext 3505) with the laboratory. (With at least 24 hours' notice, where possible).
- Laboratory staff are usually required to attend the biopsy session to assess the adequacy of sample. A minimum of **10-15 minutes** notice is required prior to collection of the **first biopsy**. (*Do not begin the procedure until the laboratory staff have arrived and have set up, as this may affect the sample integrity*)
- The cut off time for laboratory staff to attend a renal biopsy is **4pm**.
- In the unlikely event that a medical renal biopsy is sent out of hours, the cores should be placed in formalin. In these circumstances, the tissue will be sent externally for immunohistochemistry in place of immunofluorescence.

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- A printed request form must be received prior to the procedure.

3.8 Muscle biopsies

- All muscle biopsies must be **pre-booked** with the laboratory (with at least 24 hours' notice) and arrive no later than **4pm**.
- A Neuropathologist should also be notified in advance of the procedure.
- Service provision cannot be guaranteed for un-booked samples or those that arrive post 4.00 pm.
- See **section 3.15** for further information on muscle biopsies.

To arrange a muscle biopsy:

1. Discuss the request for a muscle biopsy with a Neuropathologist.
2. Contact the laboratory on ext 3505 and provide the following details:
 - Patient details (including AH number)
 - Theatre
 - Date of procedure
 - Estimated time of arrival

To send a muscle biopsy:

1. Wrap the muscle sample in saline soaked gauze and place the specimen in a universal or appropriately sized air-tight container. (DO NOT add formalin and do not let the sample dry out). The sample should measure at least **10 x 10 x 5mm**.
2. If a skin sample is also required, place this in a sterile universal and immerse in sterile saline. A separate histopathology request is required for the skin sample, including the reason it has been sent (e.g. for fibroblast culture). The skin samples are sent for Cytogenetics at LWH (see section 3.9 below).
3. Ensure pots are fully labelled with a minimum of 3 patient identifiers.
4. Complete a histopathology request, including the differential diagnosis and any referral forms (e.g. for mitochondrial studies), and print the A4 histopathology request form. (A separate Meditech request is required for the muscle and skin sample).
5. Place the specimen pot(s) and request form(s) in a transport container and arrange immediate delivery to the histopathology laboratory.
6. Advise specimen reception staff that the sample is fresh, therefore it is to be taken directly to histopathology.

If a pre-booked muscle biopsy is no longer required, please let us know.

3.9 Skin sample for fibroblast culture only (cytogenetics)

- Place the skin sample in a sterile universal and immerse in sterile saline.
- Ensure pot is fully labelled with a minimum of 3 patient identifiers.

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- Complete a histopathology request, including the differential diagnosis and the reason the skin sample is to be sent (e.g. for fibroblast culture). Print the A4 histopathology request form.
- Place the specimen pot and request form in a transport container and arrange immediate delivery to the histopathology laboratory.
- Advise specimen reception staff that the sample is fresh, therefore it is to be taken directly to histopathology.
- The sample must arrive at the laboratory before **4pm**
- LWH advise that the sample is only **viable for 48 hours**, therefore, if received after 12pm on a Friday or a bank holiday, it will not be sent until the next working day and viability of the sample and subsequent results cannot be guaranteed.

3.10 Neurosurgical samples

All fresh neurosurgical samples **must** be discussed with a Neuropathologist and pre-booked with the lab (ext 3505). Neuropathologists are only usually on site at Alder Hey on Tuesdays and Thursdays.

- For **routine** neurosurgical samples in formalin, **refer to section 3.3**
- For neurosurgical samples that require a **frozen section**, **refer to section 3.4**
- For **fresh** neurosurgical samples (not requiring intra-operative reporting), **refer to section 3.5**
- For **CSF** samples, refer to **section 3.12**
- **There is no out of hours intraoperative frozen section diagnostic service.**

3.11 Skin samples for Immunofluorescence

- All fresh samples must be **pre-booked** with the laboratory (ext. 3505) and arrive by **4pm**.
- For skin samples requiring immunofluorescence, wrap the sample in saline soaked gauze or saline soaked biopsy paper and place the specimen in a universal or appropriately sized container. (N.B. DO NOT add formalin).
- In the unlikely event that a skin sample of this type is taken outside normal working hours, it should be placed directly into formalin. In these circumstances, the tissue will be sent externally for immunohistochemistry in place of immunofluorescence.
- **Refer to section 3.5** for full details.

3.12 Fluid samples for cytological analysis

- Fluid samples should be placed in a sterile container with the lid fully secure to prevent any leaks. All fluid samples should be placed inside a sealed bag, with the request form kept separately, in case of leaks.
- Ensure pot is fully labelled with a minimum of 3 patient identifiers.

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- Complete a histopathology request, including any clinical details and sample collection time. Print the A4 histopathology request form.
- Separate samples for the different disciplines before bringing to the lab (e.g. histopathology, microbiology, haematology) and clearly label which discipline each of the samples are for.
- Place the sealed bag and request form in a transport container and arrange immediate delivery to the histopathology laboratory (Do not send via the POD system).
- Advise specimen reception staff that the sample is fresh, therefore it is to be taken directly to histopathology.
- The sample must arrive at the laboratory before **4pm**. Delays in sample transfer may affect the viability of the sample and subsequent results. If the sample is taken out of hours, it must be **refrigerated** and transported to the lab on the **next working day**.
- All suspected **high-risk** samples must be double bagged and clearly labelled as a biohazard. High risk samples will require prolonged fixation, therefore, a delay in reporting may occur.

3.13 Synovial fluid (for analysis at Manchester Cytology Centre)

- Synovial fluid samples must be sent in a lithium heparin tube, and they must arrive in the laboratory before **4pm**.
- Ensure tube is fully labelled with a minimum of 3 patient identifiers.
- Complete a histopathology request, including any clinical details and sample collection time (ensure it is booked in as 'synovial fluid'), as well as the request form for Manchester Cytology Centre. Print the A4 histopathology request form.
- Place the tube into a sealed bag and place the bag and request forms in a transport container and arrange immediate delivery to the histopathology laboratory (Do not send via the POD system).
- Advise specimen reception staff that the sample is a synovial fluid, therefore it is to be taken directly to histopathology.
- The sample must arrive at the laboratory before **4pm**. Delays in sample transfer may affect the viability of the sample and subsequent results. If the sample is taken out of hours, it must be **refrigerated** and transported to the lab on the **next working day**.
- Manchester Cytology Centre request that the synovial fluid samples are received by them **within 24 hours of collection**, therefore it is vital the sample is brought straight to the histopathology laboratory. Synovial fluid samples should not be taken on a Friday where possible.

3.14 Transmission Electron Microscopy

- All requests for transmission EM must be discussed with a Pathologist in advance who will advise on specimen collection.

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3.15 Histopathology Sample Flow Chart

See appendix 1

3.16 Histopathology Specimen Pot Guide

See appendix 2

3.17 Muscle Biopsy Protocols

The muscle biopsy samples are routinely divided thus:

- Orientated frozen sample for enzyme histochemistry
- Samples for electron microscopy
- Aliquot of tissue for snap freezing and storage

There are a number of specialist referral centres to which muscle samples may be sent via the histopathology department.

The specialist referral centres are listed below and their referral forms and further information can be accessed by following the links.

- **Mitochondrial Diagnostic Service:**

[Wellcome Trust Centre Framlington Place Newcastle upon Tyne](#)

- **Congenital Muscular Dystrophies:**

[Dubowitz Neuromuscular Centre Queen Square London](#)

- **Limb Girdle Muscular Dystrophy:**

[Referral Centre for LGMD Newcastle upon Tyne](#)

Each centre has a specific referral form. This must be completed and sent to the histopathology department prior to samples being dispatched for referral.

3.18 Specimen Storage and Transport

To ensure the safety of staff and preservation of samples, all containers should be tightly sealed, placed in separate sealed plastic bags where appropriate and transported in specialist carriers lined by absorbent pads for the containment of spillages. Request forms should remain separate from the sample container allowing all patient information to remain confidential throughout sample transfer.

Samples will be transported from theatres and clinics to Pathology specimen reception by appropriately trained staff. Samples will be acknowledged on receipt.

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Samples in formalin are only to be transported to the laboratory within histopathology opening hours (Mon-Fri 9.00–17.30). Samples in **formalin** are to be kept at **room temperature** (DO NOT refrigerate).

Fresh samples (any samples not in formalin, including fluids), must be transported to the laboratory immediately and be clearly labelled as '**FRESH**'. Where this is not possible, these specimens should be stored in the fridge temporarily and transport should be arranged as soon as possible. Fresh samples should not arrive after **4pm**. Any fresh samples arriving out of hours **must** have been discussed with the on-call pathologist first.

3.19 Spillage procedures / Formalin Handling

Requestors should have local policies and procedures in place covering their own areas. Spillages should be dealt with as soon as possible protecting the safety of staff and preserving the sample. Spillage kits should be used to contain the spill; staff should have the appropriate PPE available. Contained waste should be placed in a clinical waste bag and sent for incineration. In the event of a large spillage which is uncontainable, the Fire service and Trust Health & Safety representatives should be informed. Any spillage may require ventilation of the area and appropriate signage to prevent entry.

Formalin Handling:

- All solutions containing formalin are suspected carcinogens, mutagens and sensitisers. They should be handled with care, minimising skin contact. Safety equipment including gloves should be worn, and any spill on the skin should be washed as soon as possible.
- Formalin should always be disposed of through specialist waste collection. Contact the laboratory if any formalin requires disposal.
- **Formaldehyde Hazards – Carcinogen and severe respiratory tract, eye and skin irritant and sensitiser.**

3.20 Requests for additional investigations

Tissue taken is either routinely blocked in paraffin wax or frozen which will enable additional investigations to take place beyond the release of a report. Surgical tissue that is not blocked is discarded 1 month following the release of an authorised report.

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4. Mortuary service

The department is a centre for fetal and perinatal necropsy and holds contracts with other trusts within the region to perform post mortems. The department is licensed by the Human Tissue Authority to undertake post mortem examinations and store the deceased.

The new bespoke mortuary at Alder Hey is solely for fetal, perinatal and paediatric autopsies, allowing for care of deceased patients in a calm and dignified environment. Mortuary staff work closely with the Bereavement Care Service, assisting in the facilitation of sensitive viewings.

Post mortems are undertaken by Consultant Histopathologists. Our Anatomical Pathology Technologists are highly trained and experienced in the unique protocols of fetal and perinatal autopsies.

Post mortem examinations

Post mortems fall into 3 categories:

4.1 Hospital (consented) post mortems

Post mortem consent documentation and a request form must be completed and received with the deceased. Electronic copies are distributed by Alder Hey to referring organisations periodically and following revision. These can be obtained on request from the Histopathology Office (0151 293 3656 or 0151 252 5081).

It is important that all documentation is completed accurately to minimise further distress to the family.

A placental sample should arrive from referring Trusts with the deceased, if being sent, and placed flat in an appropriate sized container immersed in 10% neutral buffered formalin.

The purpose of hospital post mortems is:

- To confirm the cause of death
- To assess the extent and severity of disease
- To assess the effects of treatment

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4.2 Coroner's post mortems

A Coroner's post mortem is required when the cause of death is unknown or unnatural and is undertaken at the request of the Coroner. This includes cases where:

- Children have died by the time they reach hospital
- Deaths are due to accidents or other injuries
- Deaths occur during or shortly after surgery
- Deaths are unexpected or unexplained.

Reporting a death to the Coroner does not automatically mean that a post mortem will be performed, if in doubt it is best to speak to the Coroner or his officer. A Consultant Pathologist is also available to offer advice.

Coroner's post mortem reports are dispatched directly to the Coroner. Consent from the Coroner is required for the release of reports to third parties.

4.3 Home Office Post mortems

Home Office post mortems are also known as forensic post mortems. Home office post mortems are carried out at the instruction of the police.

4.4 Transferring a child to the Mortuary

The Anatomical Pathology Technologist (APT) is responsible for supervision of the body store and for keeping all necessary and appropriate records relating to the deceased in the mortuary. When the APT goes off duty, or leaves the hospital site for any reason, they will ensure that the Bereavement Team has details of the deceased in the mortuary and the necessary information concerning the release of the child.

An APT is available Monday to Friday 8.30am - 5pm and out of hours on call via switchboard.

During working hours a member of staff should telephone the Bereavement Team on 2117 and an APT on 2219 to let them know that a child is being transferred. Out of hours, please contact the Bereavement Team via switchboard.

They will attend the ward/department to support the family and co-ordinate the transfer with staff in the most appropriate way. E.g. younger children will be wrapped in a blanket and can be carried or placed in a Moses basket for the transfer; older children will be transferred on the mortuary trolley. This will be done in a sensitive way to minimise distress to other children and families on the ward/department.

If you require further information about the ongoing care and support to the family and staff following transfer of a child to the Bereavement Suites please consult the Bereavement Care Services pages on the staff intranet:

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For further information on the release of bodies from the mortuary please contact the APT's.

4.5 Mortuary Advice from Pathologists

A Consultant Histopathologist can be contacted between 9am-5.30pm via the administrative team on 3656. Out of hours they can be contacted via switchboard for urgent advice.

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5. Histopathology reports and results:

5.1 Results/Enquiries (Monday to Friday 09.00 to 17.30)

Contact the administrative team on 0151 293 3656 for enquiries relating to reports/results. Results will not be provided directly to or discussed with patients or families.

Results arising from examination procedures will be reported accurately, clearly, unambiguously and in accordance with any specific instructions in the examination procedure. The report will include all available information necessary for the interpretation of the results.

5.2 Histopathology Reports

Finalised reports are posted onto the Meditech patient index under Anatomical Pathology Reports. Authorised consultants and healthcare professionals can access the reports from any linked terminal within the Trust.

Results are validated through internal and external quality control.

The pathologist will inform the clinical team of any critical and unexpected pathology results. This is documented in the 'specimen comments' section of the Meditech record. The note should include the date, times, responsible person, person notified, results conveyed, verification of accuracy of communication, and any difficulties encountered in notification.

Delayed reports are monitored via a Meditech search. If a report is delayed and this is likely to significantly impact the patient's treatment (e.g. oncology samples), the consultant histopathologist or specialty registrar will inform the lead clinician, providing an explanation and an updated estimated date of reporting. The reason for any significant delays will be specified in the specimen comment section of Meditech.

5.3 Clinical advice and interpretation

Clinical interpretation of reports can be sought from the Consultant Pathologists. An in-hours and out-of-hours Consultant Histopathologist advice service is available; contact is via switchboard.

The Consultant Neuropathologists can be contacted at Alder Hey on Tuesday & Thursdays during core hours. Out of hours they are contactable via switchboard.

When offsite they can be contacted for advice at Salford Royal NHS Foundation Trust:

daniel.duplessis@srft.nhs.uk

federico.Roncaroli@srft.nhs.uk

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6. Quality

The Histopathology department is a UKAS accredited medical laboratory, No. 9091 and licensed by the Human Tissue Authority.

A full Quality Assurance system is in operation, managed by staff trained in quality and governance processes. The service is regulated through Clinical Governance and Performance Management Groups and runs a well-established and maintained Quality Management System allowing achievement of the departmental Quality Policy and objectives. The quality of results is controlled by internal quality control procedures and monitored by external quality assessment.

6.1 External Quality Assurance

The Histopathology department participates in UKNEQAS external quality assurance schemes including:

- Cellular Pathology Technique (CPT) - Tissue Diagnostics
- Cellular Pathology Technique (CPT) - Specialist Technique
- Cellular Pathology Technique (CPT) - Frozen Sections (companion scheme to Specialist Technique)
- Cellular Pathology Technique (CPT) - Mega Block (companion scheme to Specialist Technique)
- Cellular Pathology Technique (CPT) - Renal Pathology
- Cellular Pathology Technique (CPT) - Muscle Histochemistry
- Cellular Pathology Technique (CPT) - Non-Gynae Cytology
- Cellular Pathology Technique (CPT) - Bone Marrow Trepine
- Cellular Pathology Technique (CPT) - Neuropathology
- Cellular Pathology Technique (CPT) - Direct Immunofluorescence

- Immunocytochemistry & In-Situ Hybridisation (ICC & ISH) - General Pathology Module
- Immunocytochemistry & In-Situ Hybridisation (ICC & ISH) - Lymphoid Pathology Module
- Immunocytochemistry & In-Situ Hybridisation (ICC & ISH) - Neuropathology Module

The Pathologists also participate in interpretive EQA schemes.

6.2 Uncertainty of Measurement

All types of measurement have some inaccuracy due to bias, imprecision and operator variation, and therefore measurement results can be only estimates of the values of the quantities being measured. In histopathology reports, usually qualitative data are of greater significance, however in certain situations quantitative measurements become critical of diagnosis and prognosis.

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Measurements can be made with either:-

- A ruler, for example, macroscopic measurements of tissues, tumours and excision margins.
- Microscopic measurements (for example, measuring microscopic distances in tissue sections) are made using NIS elements software on digital images. This system has been calibrated by a qualified/approved engineer using UKAS certified micrometre.

There will be a degree of variation in all such measurements, and it is this uncertainty that should be considered when interpreting the final histology report. Where tumour sizes and excision margins have been measured there is a level of uncertainty in the measurement step. For macroscopic tumour measurements we have calculated this to be +/- 2.3mm. In order to minimise such uncertainty we have a number of steps and assurances in places:-

- Ensuring tumours are only measured in the largest dimension.
- For tumours of a size close to the limits of different tumour staging we are aware that inaccuracies could upstage the tumour.
- Understanding that it is not possible to measure more accurately than to the nearest millimetre.
- Measuring to the nearest millimetre with a UKAS calibrated ruler.
- Discussion at MDT is actively encouraged regarding measurements close to staging limits.
- Final assessment of staging is a clinical decision based on multiple information sources.

If you require further information on measurement uncertainty, please contact a Consultant Pathologist or Histopathology Laboratory Manager.

6.3 Patient Consent

- The responsibility of obtaining consent for the collection of a specimen lies with the requesting clinician, as described in the Trust Informed Consent Policy – C7 (available on the DMS). All samples received into laboratory medicine will have assumed consent.
- In cases of emergency situations, the laboratory may carry out necessary procedures if they are in the best interest of the patient.
- Refer for the 'Mortuary Service' section for more information on post mortem consent. Written consent must be available before the post mortem begins.

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6.4 Complaints

- The laboratory has a complaints procedure described on the quality management system (Laboratory Medicine 2430). Laboratory medicine also follows RM – The trust complaints and concerns policy, available on the DMS.

6.5 Data Protection

- Laboratory medicine ensures that all information remains confidential. Trust policies act as governing procedures for this clause and include The Data Protection Policy and Information Governance Policy. These can be located on the DMS.

7. Turnaround Times (TAT)

TAT's are monitored as one of the departmental quality/performance indicators which are aligned to RCPATH Key Performance Indicators (KPI). Although RCPATH KPI is to report 80% of diagnostic cases within 7 days we generally achieve 90% reported within 5 days.

The target for report of hospital post-mortem cases is within 56 days. The placental TAT is within 42 days.

Complex cases may require additional time to report due to referral to external centres or more involved laboratory work. Larger samples will require increased fixation. All these factors should be taken into consideration when arranging follow-up appointments or inclusion of cases at MDT meetings.

Performance is continually monitored, included in corporate reports and able to be provided to referring Trusts in accordance with Service Level Agreements.

A provisional report on urgent cases may be possible within 24 hours if the specimen is received in the laboratory before 3pm. Please discuss the case with a pathologist before requesting urgent results. Contact details of the person to whom the report is to be communicated are required.

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8. Referred Tests

Histopathology may refer samples for expert opinion. All referred samples should be sent to a UKAS approved centre where possible:

Investigation	Address
Electron microscopy (renal)	Central Manchester Foundation Trust Department of Histopathology 1st Floor Clinical Sciences Building Manchester Royal Infirmary Oxford Road Manchester M13 9WL
Immunohistochemistry (muscle)	Salford Royal Hospital NHS Foundation Trust Department of Cellular Pathology (Neuropathology) Stott Lane Salford M6 8HD
Cytogenetics Molecular Genetics	North West Genomic Laboratory Hub – Liverpool Site Manchester Centre for Genomic Medicine Sample Reception (2 nd Floor) Liverpool Women's Hospital Crown street Liverpool L8 7SS
Genomic Testing (including WGS)	North West Genomic Laboratory Hub – Manchester Site Manchester Centre for Genomic Medicine Sample Reception (6 th Floor) St Mary's Hospital Oxford Road Manchester M13 9WL
Paediatric specialty second opinions	Great Ormond Street Hospital for Children NHS Foundation Trust Great Ormond Street London WC1N 3JH
Mitochondrial myopathies	Newcastle Mitochondrial NCG Diagnostic Laboratory School of Neurology 4 th Floor Cookson Building Medical school University of Newcastle Framlington Place Newcastle upon Tyne NE2 4HH

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Limb Girdle Muscular Dystrophies	NCG Limb-Girdle MD Referral Centre Muscle Immunoanalysis Unit Dental Hospital Lower Ground Floor Room 2.026 Richard Road Newcastle upon Tyne NE2 4AZ
Congenital Muscular Dystrophy	NCSAG Referral Centre for Congenital Muscular Dystrophy Dubowitz Neuromuscular Centre 1 st Floor, Department of Neuropathology Institute of Neurology Queen Square House Queen Square London WC1N 3BG
Forensic Toxicology	Eurofins Forensic Services Ltd Darwin House Building 414 Faraday Street Birchwood Park Risley Cheshire WA3 6FW
HODS Lymphoreticular malignancy	3 rd Floor Clinical Support Services Building (CSSB) HODS Laboratory Liverpool University Hospital NHS Trust – Royal Liverpool Site Mount Vernon Street Liverpool L7 8YE
Immunohistochemistry for Antibodies not stocked	HSL Advanced Diagnostics Laboratory Ground Floor 60 Whitfield Street London W1T 4EU
Synovial Fluid	Manchester Cytology Centre Clinical Sciences Building 2 Manchester Royal Infirmary Oxford Road Manchester M13 9WL

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Appendix 1 – Histopathology Sample Flow Chart

HP-DOC190: Histopathology Sample Flow Chart for Theatres

Histopathology Sample Chart

The lab can be contacted on ext. 3505 or 2177 during working hours (09:00-17:30) for advice. Outside of these hours the on-call pathologist can be contacted via switchboard for advice on urgent samples only.

All samples for Histopathology must have a **Meditech Histopathology Request Form**.

All fresh samples must be pre-booked and arrive at the laboratory **before 4pm**. They must be clearly labelled as **'FRESH'**. If a pre-booked sample is no longer required, please let us know.

All suspected **high-risk** samples must be double bagged and clearly labelled as a biohazard

Sample Type	Specimen requirements	Transport to lab (09:00 – 17:30*) *Fresh samples no later than 4pm	Out of hours
Tumour biopsy	<ul style="list-style-type: none"> Fresh tissue sample Wrap in saline dampened gauze/ biowrap and place in sample pot Do not immerse the specimen in saline. The specimen container and request form must clearly be labelled "FRESH". 	<ul style="list-style-type: none"> Contact the histopathology laboratory on day prior to or on the morning of the procedure to book the case in. Contact the histopathology laboratory again immediately prior to specimen transport. 	<p>3-4 core biopsies should be wrapped in saline-soaked gauze and refrigerated until the following next working day.</p> <p>The rest of the tissue should be placed in formalin.</p> <p>If the biopsy is taken over the weekend contact the on-call Histopathologist via switchboard for advice.</p>
Tumour resection	<ul style="list-style-type: none"> Fresh tissue sample Wrap in saline dampened gauze/ biowrap and place in sample pot Do not immerse the specimen in saline. The specimen container and request form must clearly be labelled "FRESH". 	<ul style="list-style-type: none"> Contact the histopathology laboratory on day prior to or on the morning of the procedure to book the case in. Contact the histopathology laboratory again immediately prior to specimen transport. 	<p>Contact the on-call Histopathologist via switchboard for advice.</p> <p>The pathologist may instruct the surgeon to wrap the specimen in saline-soaked gauze and refrigerate it until the next working day.</p>
Fresh sample with potential for WGS	<ul style="list-style-type: none"> Fresh tissue sample Wrap in saline dampened gauze/ biowrap and place in sample pot 	<ul style="list-style-type: none"> Immediately Contact Histopathology prior to transport 	<p>The sample should be wrapped in saline-soaked gauze or biowrap and refrigerated until the following next working day.</p> <p>(Separate sample if possible - 1/2 wrap in saline soaked biowrap and place in dry pot and 1/2 in formalin)</p> <p>Keep sample refrigerated until next working day</p>
CSF, BAL, Sputum and other cytology samples e.g. cyst fluid	<ul style="list-style-type: none"> Fresh fluid sample To be taken Monday – Friday only 	<ul style="list-style-type: none"> Immediately Via porter (NOT Pod system) 	<p>Keep sample refrigerated until next working day</p>

Histopathology Sample Flow Chart for Theatres - Version: 1.0, Index: HP-DOC190, Printed: 13-Jan-2025 21:30
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Author(s): Emma Moss, Sarah Eykelboom

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Sample Type	Specimen requirements	Transport to lab (09:00 – 17:30*) *Fresh samples no later than 4pm	Out of hours
Synovial fluid (for Manchester Cytology Department)	<ul style="list-style-type: none"> Synovial fluid in a lithium heparin tube Manchester Cytology Referral form and Meditech request form To be taken Monday – Thursday only 	<ul style="list-style-type: none"> Immediately Contact Histopathology prior to transport Must arrive in Manchester within 24hrs of sampling 	This sample should not be taken out of hours as it must arrive at Manchester within 24hrs of sampling.
Cytogenetics sample	<ul style="list-style-type: none"> Fresh tissue in saline To be taken Monday – Friday (am) only 	<ul style="list-style-type: none"> Immediately via porters Must arrive at Liverpool Women's Hospital within 48hrs of being taken 	Keep sample refrigerated until next working day
Muscle biopsy	<ul style="list-style-type: none"> Fresh sample Wrap in saline dampened gauze and place in sample pot 	<ul style="list-style-type: none"> Immediately via porters Must be booked with the laboratory in advance Laboratory to be kept informed on day (to ensure trained staff are available) 	This sample should not be taken out of hours as there are no Histopathology staff available to process
Intra operative fresh tissue samples	<ul style="list-style-type: none"> Fresh sample Wrap in saline dampened gauze/biowrap and place in sample pot 	<ul style="list-style-type: none"> Immediately via porters Must be booked with the laboratory in advance Laboratory to be kept informed after prior contact 	This sample should not be taken out of hours as there are no Histopathology staff available to process
Other fresh tissue sample (NOT formalin fixed) e.g. Rectal biopsy, skin biopsy, liver biopsy	<ul style="list-style-type: none"> Fresh sample Wrap in saline dampened gauze/biowrap and place in sample pot 	<ul style="list-style-type: none"> Immediately via porters Laboratory to be contacted prior to taking sample 	This sample should not be taken out of hours as there are no Histopathology staff available to process
Routine tissue samples (formalin fixed)	<ul style="list-style-type: none"> Place tissue in formalin filled biopsy pot 	<ul style="list-style-type: none"> Record in Pathology book Transport via porters within working hours of Laboratory 	Samples are not to be delivered out of hours
Very large routine samples (too large for 5L sample pot)	<ul style="list-style-type: none"> Place tissue in a 10L/25L sample container or other clean sealable container large enough 	<ul style="list-style-type: none"> Contact the laboratory to warn staff that sample being sent without Formalin Immediately transport via Porters 	<p>The theatre staff should obtain a 10L/25L pot from specimen reception.</p> <p>Keep sample refrigerated / cover with dampened paper towel until it can be transported during laboratory hours.</p>

See Histopathology Laboratory Handbook for further information on sample requirements.

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Appendix 2 – Histopathology Sample Pot Guide

HP-DOC128: Histopathology specimen pot guide for Specimen Reception and Theatres

Histopathology Specimen Pot Guide

Please make sure all specimens are dealt with appropriately according to the table below.
If still unsure, please phone the Histo lab on ext. 3505 for advice.
Samples must only arrive in lab working hours **Mon-Fri 9.00-17.30***
***Fresh samples no later than 4pm**

TYPE	APPEARANCE	DESCRIPTION
Formalin fixed large specimens		<ul style="list-style-type: none"> Filled with 10% neutral buffered formalin (NBF) and collected from the laboratory specimen reception. Pots are available 10L, 5L, 2.5L, 1L and 500ml sizes*. Examples of samples include resections, whole organs. <p style="color: red;">Samples can be batched before bringing to Histo. They must only arrive in lab working hours</p> <p style="color: red;">* For very large samples, 25L pots are available. NBF will be added once the sample arrives in the laboratory.</p>
Formalin fixed small specimens and biopsies		<ul style="list-style-type: none"> Purchased by theatres prefilled with NBF. Several shapes and sizes are available from 20ml - 250ml. Examples for smaller pots include gastric biopsies, bone marrow trephines; larger pots include skin bx's and appendix resections. <p style="color: red;">Samples can be batched before bringing to Histo. They must only arrive in lab working hours</p>
Containers containing unfixed fresh specimens.		<ul style="list-style-type: none"> Specimens are to be wrapped in saline soaked gauze, placed in saline soaked biopsy paper or placed on saline soaked filter discs, then placed in an empty pot (with <u>NO</u> formalin). These pots are suitable for fresh rectal bx's for Hirschsprung's analysis, needle core bx's, muscle bx's or skin bx's for IMF; empty larger pots are available from specimen reception for fresh tumour resections. <p style="color: red;">Samples must be brought immediately to the Histo Department. The container and request form must indicate if the specimen is fresh.</p>
Sterile Saline for solid tissue samples		<ul style="list-style-type: none"> For samples, usually skin, going to the Cytogenetics Department for fibroblast culture. Sample must be sent in a sterile universal container containing sterile saline. <p style="color: red;">Sample must be brought immediately to the Histo Department, as the sample must be sent to Cytogenetics within 48 hrs (keep refrigerated if taken out of hours)</p>
Cytology specimens (including BAL samples and CSF)		<ul style="list-style-type: none"> In the case of BAL samples the pot that the sample has been collected in is often sent to the laboratory. A sterile universal container is acceptable <p style="color: red;">Sample must be brought immediately to the Histo Department (keep refrigerated if taken out of hours)</p>
Synovial Fluid Samples		<ul style="list-style-type: none"> Synovial Fluid Samples to be sent to Manchester Cytology Centre must be sent in a lithium heparin tube. <p style="color: red;">Sample must be brought immediately to the Histo Department, as the sample must be sent to Manchester within 24 hrs (keep refrigerated if taken out of hours)</p>

N.B.

- **3 identifiers are required** on the pot as well as the specimen type/site, this must match the Histology request form.
- A printed A4 Histology request form must accompany all samples.
- Fresh samples must be delivered **immediately** to the lab with a **clear indication that it is fresh**.
- Look out for leaking samples - they are best handled with **gloves on**.
- Look out for infectious samples - they should be double bagged.
- *A Pathologist **must** be consulted before sending any samples out of hours. They can be contacted via switch.

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