Cellular Pathology User Manual

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CONTACT US

We welcome comments from users about the content of the user manual. This enables us to improve the service or provide more appropriate information. This may be done by contacting the Quality Officer indicated below.

In addition, specific groups of users are contacted annually by survey questionnaire (multidisciplinary teams, general practitioners and laboratories that refer specimens to us) to establish the degree of user satisfaction pertaining to the usefulness and timeliness or otherwise of our reports, and to solicit suggestions for improvement.

Switchboard	028 90 240503

Cellular Pathology	
Royal Victoria Hospital Institute of Pathology, Grosvenor Road, Belfast, BT12 6BA	Mortuary Royal Victoria Hospital, Grosvenor Road, Belfast, BT12 6BA

CHANGE REQUEST FROM SERVICE USER

TP-2110 Change Request from Service User

The above form is to be completed for any change in practice of our service users which is expected to impact the cellular pathology service.

This will allow the laboratory to review the change, assess any potential impact, and advise on the level of service provision that can be offered. Examples may include a new test request that the cellular pathology department does not routinely offer, introduction of additional clinics or Waiting List Initiative (WLI) work.

This form must be completed and submitted to the Clinical Director (Clinton Boyd, clinton.boyd@belfasttrust.hscni.net) and Service Manager (Shauna McAuley, shauna.mcauley@belfasttrust.hscni.net) for review and approval prior to initiating the activity.

Failure to do communicate change and seek approval may result in the cellular pathology department not being able to process the sample.

KEY CONTACTS

Institute of Pathology, Royal Victoria Hospital, Grosvenor Road, Belfast, BT12 6BA		
Clinical Director	Dr. Clinton Boyd clinton.boyd@belfasttrust.hscni.net	028 9615 5981
Specialist Improvement Leads	Prof. Paul Kelly paul.kelly@belfasttrust.hscni.net Dr. Michelle Moore michelle.moore@belfasttrust.hscni.net	028 9615 5991 028 9615 3769
Cellular Pathology Service Manager	Ms. Shauna McAuley shauna.mcauley@belfasttrust.hscni.net	078 5054 2086
Histopathology Discipline Manager	Mr. Robbie Wilson robbie.wilson@belfasttrust.hscni.net	028 9615 3611 07894735064
Cytopathology Discipline Manager	Mr. David Gillan david.gillan@belfasttrust.hscni.net	028 9615 3492 077 8043 1497
Cellular Pathology Quality Officer	Ms. Leona Grant leona.grant@belfasttrust.hscni.net	028 9615 0224 075 9080 6728
Training Lead	Ms. Nicole O'Doherty nicole.odoherty@belfasttrust.hscni.net	
Health & Safety Lead	Ms. Estelle Vaughan estelle.vaughan@belfasttrust.hscni.net	
Specialist services		
Neuropathology		028 961 50216
Neuropathology consultants	Dr. Estelle Healy Dr. Brian Herron	077 7925 5420 078 0186 6678
Immunocytochemistry		028 9065 0226
Immunopathology		028 9615 0215 077 1780 5516
Electron microscopy		028 961 50216
Post-mortem services		
Adult post-mortem consultant	Dr. Estelle Healy Dr. Brian Herron	07779255420 028 9615 5904
Paediatric office (post-mortem enquiries)		028 9615 5825 028 9615 5244
Mortuary Manager	Mr. David Orrell david.orrell@belfasttrust.hscni.net	028 9615 5908 07710 855758
Mortuary Mortuary Mobile (On-call MTO)		028 906 50149 079 7936 6041
Consultant on call		077 7563 5395
Administration and Clerical Operational Manager	Ms. Christine McMillan christined.mcmillan@belfasttrust.hscni.net	028 9165 5830

HOURS OF WORK

Specialty	Hours of service *(Monday-Friday)*	Out of hours *(Saturday, Sunday, bank holidays and urgent specimens)*
Histopathology	7:30am – 5.30pm	**General histopathology** The consultant medical staff provide an out of hours rota (band B* basis only). The on call consultant can be reached on 07775635395 (Lab Staff 07824539469) **Neuropathology** Dr. Estelle Healy (07779255420) Dr. Brian Herron (07801866678)
Diagnostic cytopathology	8:45am – 5.00pm	07824564169
Specialist services	**Immunocytochemistry** 7:30am – 5.15pm **Immunopathology** 8.45am – 5.00pm **Electron microscopy** 9:00am – 5.00pm	**Immunopathology (renal biopsies only)**: Contact duty consultant pathologist (Dr O'Rourke) via: • switchboard* or • immunopathology laboratory (077 1780 5516)
Post-mortem service	Mortuary 08:30am – 4:30pm Laboratory 8.45 am – 5.00pm	**Mortuary** Saturday 9.00am – 12.30pm Sunday & bank holidays by prior arrangement only. Out of hours adult and paediatric post-mortems can be arranged by contacting the on-call MTO (07979 366041) **Laboratory** as required by mortuary

** Band B basis means that the service provided is for telephone advice. No urgent intra-operative frozen section service is provided.*
***Switchboard 028 90 240503*

CELLULAR PATHOLOGY LABORATORY SERVICES

A UKAS accredited medical laboratory No. 8638.
Please see UKAS website for a full list of tests currently on our scope of accreditation.
8638 Schedule of accreditation

The cellular pathology laboratory provides a diagnostic and reference service, both to BHSCT and the wider region. Cellular pathology samples are usually submitted for the assessment of macroscopic, microscopic, and ultrastructural abnormalities to aid diagnosis, treatment planning and management of disease states, including malignancy.

The following range of diagnostic specialties is available:

- breast pathology
- bone & soft tissue pathology
- cardiovascular pathology
- cervical cytology
- diagnostic cytopathology (including fine needle aspiration cytology)
- dermatopathology
- endocrine pathology
- ENT pathology
- gastrointestinal pathology
- haematopathology
- hepatopancreatobiliary pathology
- thoracic pathology
- ophthalmic pathology
- oral & dental pathology
- renal pathology
- ultrastructural pathology
- neuropathology
- urological pathology

These are underpinned by technical expertise in immunocytochemistry (ICC), immunofluorescence (IMF), neuropathology and electron microscopy (EM).

We routinely process samples from:

Ards Hospital
Belfast City Hospital
Dental practitioners (regional)
Downe Hospital
GPs
Lagan Valley Hospital
Mater Hospital
Musgrave Park Hospital
The Royal Hospitals
Ulster Hospital

REQUEST FORM & SAMPLES

REQUEST FORM DESCRIPTION

Cellular pathology	Each sample **must** be accompanied by a fully completed Request Form Histopathology, Cytopathology or Immunopathology (see appendix) request form signed by the submitting doctor. Advice on fixation and handling of different specimen types can be obtained from the duty consultant pathologist or by ringing the appropriate laboratory.

In order to ensure timely and appropriate testing on the correct patient it is essential that the request form and sample are labelled correctly.

Essential criteria – these are required to correctly identify the patient, ensure the sample is handled correctly and to direct the report appropriately.

If all essential criteria are not met there **will** be a delay in sample turnaround time and the sample may not be processed. **All details should be completed to provide the best possible service for the patient.**

General request forms are available.

Histopathology:

TP-2250 Histopathology Request Form

This document MUST be printed in colour. This will aid identification and transport to the histopathology laboratory.

In addition some specialties have their own forms.

Diagnostic cytology:

TP-390 Diagnostic Cytopathology Request Form (CT/US/FNA)
TP-391 Diagnostic Cytopathology Request Form (EUS FNA)
TP-392 Diagnostic Cytopathology Request Form (Head and Neck FNA)

Essential criteria

REQUEST FORMS

All request forms **must** contain:

A

1. Health & care number*
2. Patient's full name* (first name and surname)
3. Sex
4. Date of birth
5. Address

B.

6. Hospital/practice **and** ward location
7. Consultant/GP
8. Requesting clinician details
9. Clinician's contact number in the case of urgent or frozen section requests
10. NHS/ Private patient - please tick appropriate box

C

11. Date
12. Specimen details
13. Clinical data

SAMPLE LABELLING

All sample containers **must** contain:

1. H&C number
2. Patient's full name (first name and surname)
3. Date of birth
4. Specimen type (if more than one sample submitted – this excludes cervical cytology)

Notes:

A. *H&C number and patient name and Date of birth are required for correct identification of the patient.

B. Information regarding the test requester. This is required to ensure that the report is returned to the correct consultant and source.

C Specimen information required to assist with diagnosis and assess specimen suitability.

NB If the patient does not have a H&C number **all** other request form criteria must be present to safely identify the patient. This is only applicable in specific cases e.g. immigrants, private patients from Republic of Ireland (ROI), family planning patients.

KEY POINTS TO REMEMBER

- Information provided on all request forms and samples must be **legible.**
- Hospital or GP practice printed labels are preferred for both request forms and samples.
- Specimens may not be accepted for analysis in some laboratory disciplines where the essential criterion in the **Minimum Data Set** is not met on either the form or the specimen container.
- Sample labelling / request form details **must match**.

CRITERIA FOR REJECTION OF SPECIMENS

Histopathology, diagnostic cytopathology and specialist services

If a specimen is received without a fully completed request form, due to the unrepeatable nature of the samples, attempts will be made by laboratory staff to chase up the missing information. This will cause **considerable delay** in the examination process and is a waste of laboratory resources. This will be communicated to the requester in the written report.

Cervical cytology

In these circumstances, specimens may be rejected immediately:

- Form received with no specimen.
- Discrepancy between the patient details on the form and the specimen.
- No patient details on either the request form or the specimen.
- Specimens which have leaked and are insufficient for testing.
- Specimens deemed unsuitable or inappropriate for testing by BMS at the point of testing, e.g. inappropriate transport medium.
- Specimens accompanied by a request form with insufficient information to send out a report or to determine which test is required.
- Vials which are out-of-date.

If a sample is to be rejected or face delay due to incomplete/inaccurate request forms or sample containers, a Datix incident report will be raised and consideration given to whether this has clinically impacted the patient's care pathway. Any Datix raised will be communicated to the requester in the final report.

GUIDELINES FOR SPECIMEN COLLECTION

- Only laboratory approved, CE marked, in vitro devices IVDs, must be used as primary specimen containers, not substitutes or improvised containers.
- Use only in date reagents/ fixative/ vials.
- Ensure fixative has been released from lid if using formalin free containers
- Each sample should be placed in a separate sealed specimen bag.
- Collect an adequate amount of specimen. Inadequate amounts of specimen may yield false-negative results.
- All container tops **must be firmly closed** as leakage adversely affects not only the specimen but other specimens sharing the transit.
- Specimens must be kept in a cool room awaiting dispatch, not in the sunlight or near a radiator.
- Transit to the laboratory should be prompt and specimens must not be left in uncontrolled vehicles (hot/cold) for any prolonged period.
- If transport is delayed please contact the laboratory for sample storage guidance.
- Samples which are of inadequate size, in incorrect containers, or badly delayed in transit may not be processed.
- If a sample is unsuitable for testing a written report will be sent to the requester giving the reason and, if appropriate, requesting another sample.
- Samples must be packaged and sent in compliance with with the current regulations on the transport and postage of biological materials – see TRANSPORT below.

All leaking samples present a health & safety risk to staff therefore a Datix incident report will be raised on the receipt of any leaking sample, fixed or fresh.

Sharps Injuries and Blood and Body Fluid Exposure (BBFEs) - Prevention and Management of

BHSCT Waste Policy V2

14-3-3 ANALYSIS

If a CSF sample is suspected of CJD and 14-3-3 protein analysis is required, contact the **National CJD Surveillance Unit** (Tel: 0131 537 1980) in Edinburgh. The scientific staff there will have a discussion with the clinical staff to determine if the sample should be transferred there via the Cellular Pathology department. For further information and sample requirements please see appendix 1.

CONSENT

Products of conception specimens **must** have examination consent forms appropriately completed or they will be returned to source.

HIGH RISK SAMPLES

For suspected or known hazard group 3 pathogens, hazard warning category 3 pathogen labels should be affixed both to the container and the accompanying request form. If there is any doubt as to whether a specimen is high risk, please contact the appropriate laboratory or refer to the ACDP within the HSE website.
https://www.hse.gov.uk/biosafety/management-containment-labs.pdf

Hazard group 3 is defined as a biological agent that may cause severe human disease and presents a serious hazard to employees; it may present a risk of spreading to the community, but there is usually effective prophylaxis or treatment available.

NB: Hazard warning category 3 pathogen labels should be affixed to **ALL** samples taken from patients with pyrexia of unknown origin (PUO) following foreign travel.

Examples of hazard group 3 pathogens

Bacteria:
- *Bacillus anthracis* (Anthrax)
- *Brucella* species
- *Escherichia coli*, vero-cytotoxigenic strains (e.g. 0157: H7 & others)
- *Mycobacterium tuberculosis*
- *Mycobacteria* other than tuberculosis (MOTT)
- *Salmonella typhi*
- *Salmonella paratyphi*
- *Shigella dysenteriae* (Type 1)

Fungi:
- *Blastomyces dermatitidis*
- *Coccidioides immitis*
- *Histoplasma* species
- *Paracoccidioides brasiliensis*
- *Penicillium marneffei*

Viruses:
- Severe Acute Respiratory Syndrome Coronavirus (Covid-19)

Viruses cont:
- All viral hepatitis (except Hepatitis A)
- HIV
- Severe Acute Respiratory Syndrome (SARS)
- Prion Proteins:
- Transmissible spongiform encephalopathies (TSE) e.g. the agents of Creutzfeldt-Jacob disease (CJD): variant Creutzfeldt-Jacob disease (vCJD)
- Fatal familial insomnia
- Gerstman-Straussler-Scheinker syndrome
- Kuru

Hazard Group 4 is defined as a biological agent that will cause severe human disease and is a serious hazard to employees; it is likely to spread to the community, and there is usually no effective prophylaxis or treatment available. **Please contact the Medical Microbiology team immediately if you suspect a group 4 pathogen, e.g. Lassa, Marburg, Ebola and Congo-Crimean. Under NO circumstances should any samples be taken from such patients without prior consultation.**

MINIMUM RE-TESTING INTERVALS

Histopathology

It is not helpful to specify minimum retesting intervals for the majority of Cellular Pathology specimens which tend to be unique to a particular clinical episode.

In general, biopsies are taken for specific clinical indications. A repeat biopsy may be necessary if an initial biopsy does not provide sufficient information for clinical management.

When clinical features or disease progression do not fit with a previously established diagnosis then review of previous biopsy material should be undertaken before considering a repeat biopsy.

Diagnostic cytopathology

The investigation of symptoms or clinical abnormalities should be investigated as appropriate.

For patients whose tissues are sampled as part of national screening programmes, the sampling interval for asymptomatic patients will be determined by the programme. The investigation of symptoms or clinical abnormalities should be investigated as appropriate and is out with the screening service.

When considering the appropriate tests to request, the negative predictive value should be considered. Some tests, such as urine or nipple discharge cytology, are recognised as having a low negative predictive value and thus cannot be used to exclude significant disease. Repeating such tests does not provide further reassurance or negate previous equivocal results.

A repeat sample may be necessary if an initial specimen does not provide sufficient information for clinical management. Repeatedly sending samples when a definitive diagnosis (e.g. positive for specific tumour type) has been

established is not helpful unless additional testing is indicated, e.g. predictive molecular testing.

Cytological surveillance of asymptomatic patients following malignant disease (e.g. urine specimens as follow up for urothelial carcinoma) should not be performed more frequently than annually. The development of symptoms should be investigated as appropriate.

This information is in compliance with the Royal College of Pathologists (RCPath) publication **National minimum retesting intervals in pathology,** version 2, March 2021.

Cervical Cytology

A repeat cervical smear should not be taken less than three months after the previous test.

The opinion offered by the pathologist(s) in the report may suggest repeat sampling if there be diagnostic uncertainty or a requirement for more tissue for other more specialised tests such as electron microscopy, immunofluorescence, and molecular testing or flow cytometry. If further information is required in this context, the pathologist(s) in question should be contacted directly.

RESULTS

Results from Cellular Pathology are conveyed in the form of an electronic report, issued by the reporting pathologist. The report will contain a diagnosis and details of the cellular features that led to this diagnosis. This is available to clinicians via ECR.

In histopathology and diagnostic cytology, decisions regarding telephone communication of results are at the discretion of the pathologist. In general, unexpected significant malignant diagnoses on specimens received from general practice will result in telephone communication with the requesting GP. For patients who are already under the care of a cancer MDT, unexpected results are communicated through regular MDT communication channels.

In cervical cytology, all suspected invasive squamous cell carcinomas, and all adenocarcinomas are communicated directly to the responsible GP as part of the urgent referral pathway.

POST-MORTEM SERVICE

The BHSCT mortuary is licensed by the Human Tissue Authority (HTA) to undertake post-mortems and to store the deceased.

ADULT POST-MORTEM SERVICE

When there is a death in the hospital a doctor may wish to issue a death certificate or request a post-mortem.

Guidance on death certification and cremation certification is available from the www.health-ni.gov.uk website in a document entitled "**Guidance on death, stillbirth and cremation certification**". This has been circulated to hospital staff.

Guidance surrounding Death | Department of Health (health-ni.gov.uk)

Transport & preparation of the remains

All adult patients being referred to the BHSCT mortuary must be prepared in line with the BHSCT last offices procedures. The Trust has a contracted funeral director to transfer patients from all areas of the Trust to the BHSCT mortuary. To arrange for the transfer of a patient to the mortuary, staff must contact the Trust switchboard (0) once the last offices has been completed.

The name of the deceased, their location and responsible staff name must be given to the contracted funeral director, who will respond and transfer the deceased to the mortuary within the contracted response time.

Consent forms

Consent forms are available on each ward if a consented post-mortem is requested. These are triplicate forms and all sections **must** be filled in. One copy of this form is given to the relatives of the deceased. One copy is put in the hospital notes and a third copy is retained by the pathologist.

A doctor who has been involved in the care of the deceased should complete a clinical summary form. This can guide the pathologist as to the major issues involved in any case. The doctor may wish to indicate specific questions that should be addressed during the post-mortem.

Body Transfer Form

Body Transfer Form 1A (adult) **must** accompany each patient admitted to the mortuary. This form must be completed in **full** by ward staff and informs the mortuary staff that a post-mortem is to be performed or if the death has been

referred to the coroner, etc. Poorly completed body transfer forms may **delay** the management of the deceased through the mortuary.

Documentation requirements:

Hospital notes, a consent form with the clinical summary and a fully completed Body Transfer Form **must** accompany the deceased to the mortuary. The clinical notes should be made available to the pathologist; these will be returned to the ward within 24 hours of autopsy.

Coroner's cases

A death may be reported to the coroner in the following situations:

- A doctor did not treat the person during their last illness.
- A doctor did not see or treat the person in the 28 days before they died.
- The cause of death was sudden, violent or unnatural, such as an accident or suicide.
- The cause of death was suspected murder.
- The cause of death was industrial disease of the lungs, such as asbestosis.
- The death occurred in other circumstances that may require investigation.

A death in hospital should be reported to the coroner if:

- There was a question of negligence or misadventure surrounding the treatment of the person who died.
- They died before a provisional diagnosis was made and the doctor was not willing to certify the cause.
- The patient died as the result of the administration of anaesthetic.

Consent is not required for coroner's cases.

Information on coroner's post-mortems may be obtained from the Coroner's Service for Northern Ireland at www.justice-ni.gov.uk/articles/coroners-service-northern-ireland

All adult patients directed by the coroner for post mortem will be transferred from the Belfast Trust mortuary to the Northern Ireland Regional Forensic Mortuary (NIRFM) located on the Royal Victoria Hospital site, where the examination will take place.

Ward staff must not make arrangements for the eventual release of a body without first contacting the mortuary staff to ensure that families are not given unnecessary expectations of return of a body.

Further information may be obtained from the mortuary or the Bereavement Support Office available during office hours through the RGH Switchboard.

PAEDIATRIC POST-MORTEM SERVICE

All children, infants and babies over 12 weeks gestation by size, i.e. crown-rump length over 6 cm, must be transferred to the Belfast Trust mortuary for post-mortem.

All paediatric post-mortems are carried out by Alder Hey Children's NHS Foundation Trust which is based in Eaton Road, Liverpool, L12 2AP.

All paediatric coroner's post mortems are carried out at NIRFM. All paediatric coroner's cases admitted to the Belfast Trust Mortuary will be transferred by local arrangement to NIRFM where the examination will take place.

The Belfast Trust Mortuary will make the necessary arrangements for the baby or child to be transferred to Alder Hey for the post mortem to take place.

All clinical units referring a child, infant or baby to the Belfast Trust Mortuary for post mortem in Alder Hey must consult the 'Guidance for the Admission of Perinatal / Paediatric to BTM for consented Post Mortem' (TP-1612).

TP-1612 Guidance for the admission of perinatal/paediatric cases to BTM for consented hospital post mortem

Paediatric cases are hospital consented post-mortem examinations.

Arranging a paediatric post-mortem

Contact the mortuary:

Monday - Friday:	8:30 am – 4:30 pm:	02890 633679
Saturday:	9.00 am – 12.30 pm	
	Out of hours:	07979 366041

NB *Ward staff should not give a time for post-mortem examination/funeral to the family until they have spoken to mortuary staff.*

Transport of paediatric cases

It is the responsibility of the referring unit to arrange transport to Belfast Trust Mortuary with their Trust funeral director.

The baby must be transferred during Belfast Trust Mortuary working hours (Mon to Fri 9.00 am – 5.00 pm, Sat 9.00 am – 12.30 pm). If this is not possible, transfer should be early the next working day. Transfer can take place outside these hours from UHD, LVH or MIH, since this is done by the BHSCT contracted funeral director.

All bodies must be transferred in a suitable casket, coffin or corrugated plastic box. Larger infants may be wrapped in a sheet or blanket. If no suitable casket is available, advice should be sought from mortuary staff before transfer.

The body, the outside and the inside of the casket **must** be clearly labelled with the name and date of birth of the baby.

Any personal items accompanying the remains may be placed in the casket or forwarded along with it. Any personal items must be recorded on the Body Transfer Form 1B.

A **Body Transfer Form 1B MUST** be fully completed in every case to ensure full traceability. There are three copies: white, blue and green. The white and blue copies must accompany the body. The green copy is retained by the ward. Further instructions are on the inside cover of the book of body transfer forms held in the ward.

Documentation requirements

Documents to be sent with the body to the mortuary are:

Consented case –

1. A fully completed, appropriately signed DHSSPS Consent for Post Mortem form (baby or child), white copy only.
2. A Coroner's Authorisation Proforma completed by the referring consultant / consent taker as appropriate to the case (Coroner's Authorisation Proforma A or Proforma B).
3. A Belfast HSC Trust Regional Request for Post-mortem Examination of a Baby form.
4. A Body Transfer Form (1B).
5. A copy of the MCCD or Stillborn Certificate as appropriate.
6. A copy of the obstetric or clinical notes as appropriate (where required).

Coroner's case – SUDI proforma / clinical history, hospital notes and fully completed Body Transfer Form (1B). Parental consent is not required for a Coroner's post-mortem.

Hospital cremation – if cremation is to be organised by the paediatric pathology service the appropriate forms should be included with the post-mortem documentation.

Place all paperwork in a sealed envelope labelled with the name and DOB of the baby and give it to the funeral director at the time of transfer. Do not place paperwork in the casket.

SUDI (Sudden unexpected deaths in infancy)
All sudden unexpected deaths in infancy (SUDI) and in childhood must be reported to the Coroner. Priority must be given to the preservation of forensic evidence at all times.

For further information / advice please contact the Belfast Trust Mortuary as above or the Northern Ireland Regional Forensic Mortuary on 028 9615 9017 during operational hours.

Hazard group 3 cases

Hazard group 3 cases (communicable diseases) pose a risk to staff handling the remains, including mortuary staff, pathologists and designated funeral directors.

The management of all hazard group 3 cases must be in line with the Belfast Trust last offices procedures. For the management of all COVID-19 cases, ward staff must consult the Belfast Trust COVID-19 operational plan, section 23 - procedures after death. This is available on the Hub. All patients where the infection status is unknown or is pending a laboratory outcome, must be treated as potentially infectious and treated in line with the last offices procedures.

- Place the remains in a body bag and clearly label with a hazard group 3 label on the wrappings around the body.
- Complete the **Body Transfer Form**, ensuring that the infection risk section is clearly completed.
- Place any patient notes or summaries into a sealed envelope or bag to ensure patient confidentiality.
- Ensure the designated funeral director who is transferring the remains to the Belfast Trust Mortuary is made aware of the hazard group 3 status of the remains, but for patient confidentiality reasons, the nature of the infection need not be disclosed.

Senior mortuary staff will contact the referring ward or the infection control team to discuss the management of the patient if required.

Release of body and reports

Upon completion of the consented post-mortem in adult cases, the Belfast Trust Mortuary will release the body to the designated family funeral director or arrange for the return of the body to the referring hospital.

Upon completion of the consented post-mortem at Alder Hey Children's Foundation Trust, the baby or child will be returned to the Belfast Trust Mortuary for subsequent release to the designated family funeral director, the family or the referring hospital.

All patients in the Belfast Trust Mortuary not requiring a post-mortem will be released from the Belfast Trust Mortuary to the designated family funeral director upon completion of the Medical Certificate Cause of Death (MCCD), or the issue of a proforma letter from the Coroner's office.

The report will be forwarded electronically by password protected email.

Autopsy reports are usually completed within 12 weeks, although complex cases or those with peripheral laboratory involvement may take longer.

TISSUE DONATION SERVICE

The Belfast Trust Mortuary assists NHS Blood & Transplant (NHSBT) under a service level agreement, with eye donation. All patients referred to, or pending referral to, NHSBT for eye donation must be transferred to the mortuary with a Body Transfer Form (1A) with the organ retrieval section completed appropriately.

Consent for donation will be forwarded to the mortuary by the national referral centre when the next of kin consents to the donation.

In cases of solid organ donation, the local specialist nurse for organ donation (SNOD) may take consent from the next of kin for eye donation. In these cases the consent must be forwarded to the mortuary along with the appropriate ante-mortem blood samples.

If practical, mortuary staff will facilitate eye retrievals in theatres in cases of solid organ donation. This can be discussed by contacting the mortuary on 028 9065 0149 or 07979 366041.

SAMPLE REQUIREMENTS AND TURNAROUND TIMES (TATs)

The cervical cytology service aims to achieve TATs within Young Person and Adult Screening Team guidelines. Due to increasing workloads, and delays in the implementation of HPV testing TATs have been adversely affected. Please mark on the request form if there is a clinical urgency on the result and these can be prioritised.

The concept of fixed turnaround times for all histopathology specimens has been superseded by a requirement that reports are available for timely clinical decision making, as outlined in “Key assurance indicators for pathology services" (RCPath document G181, November 2019). This can be agreed between relevant clinical teams and the laboratory and monitored by regular audit.

Specimen Type	Specimen Requirement	TAT
General histopathology biopsies	Immediately place specimen in **10% formalin.** All specimens must be delivered to the laboratory in adequately sized leak proof containers in accordance with UN3373. Specimen containers are supplied to BHSCT sites by Belfast Trust Laboratories. Sources outside the BHSCT can purchase suitable containers through the SARSTEDT website (https://www.sarstedt.com/en/home/)	80% of cases within 28 days
Paediatric tumour biopsies	Send all paediatric tumour biopsies or resections immediately to the laboratory fresh and **unfixed**. • Contact the laboratory prior to sending the specimen. • Needle biopsies may be placed onto paper. • The tissue should be kept moist with a small amount of sterile saline	
Frozen sections (including brain frozen sections)	Frozen sections must be **pre-booked** if required during planned surgery. Tissue must be **fresh** and delivered to the laboratory immediately, between 8:45 am and 4.00 pm. There is no out of hours frozen section reporting service. Transport arrangements are the responsibility of the requester. **NB**: Frozen section is not appropriate when there is suspected involvement by a hazard group 3 pathogen. Frozen sections give poorer histological definition than specimens routinely fixed in formalin. Advice on the appropriateness of frozen section diagnosis in a specific case may be obtained by contacting the duty consultant.	1 hour onsite 2 hours offsite (verbal report). A written report will follow.
Frozen sections (Mohs)	Contact No: 02890650407 Level 5 Dermatology Outpatients Department, RGH. Clinic every Tuesday from 8.30 am	Same day diagnosis

Specimen Type	Specimen Requirement	TAT
Muscle biopsy (RVH Site)	Request **liquid nitrogen** and **EM fixative** from the laboratory and ensure that staff will be available to receive the specimen. TP-1326 Arranging a Muscle Biopsy Three separate specimens are required for each muscle biopsy: 1. Histology and enzyme histochemistry: • Specimen size should be approximately 3 x 3 x 3 mm. • Place the specimen on a piece of lollipop stick or tongue depressor and wrap in a piece of saline dampened gauze. • Place the gauze and specimen in a **dry sterilin jar**. 2. Electron microscopy: • The specimen can be smaller than that for histology. • Place the specimen on a piece of lollipop stick or tongue depressor and immerse in the **EM fixative** provided. 3. Specialist investigation • Specimen size should be approximately 3 x 3 x 3 mm. • Wrap the specimen in the **Parafilm** supplied and drop into the **liquid nitrogen**. **Do not** use excessive heat whilst taking the biopsy (cautery, diathermy, etc.). This destroys the enzymes in the biopsy and causes severe artefact which will limit analysis. If a skin biopsy is also required inform the laboratory who will supply an extra **EM fixative** and **transport medium for cell culture**. Muscle biopsies and skin in EM fixative: Send **immediately** to the laboratory Specimen for cell culture: Send to the **Department of Medical Genetics** (with the appropriate request form).	80% within 14 days. Inflammatory myopathy cases - provisional report available in 3 working days.

Specimen Type	Specimen Requirement	TAT

Muscle biopsy
(External Source)
	• Contact the laboratory in advance to ensure staff are available to receive the specimen. A minimum of 24 hours notice is preferable. TP-2364 Off-Site Muscle Biopsy Advice
	• Provide patient details and contact details for the clinician taking the biopsy.
	• Submit one piece of muscle measuring at least **1 cm^3**. This will be split into several pieces for analysis and storage upon receipt in the lab.
	  • Place the specimen on a piece of lollipop stick or tongue depressor and wrap in a piece of saline dampened gauze.
	  • Place the gauze and specimen in a **dry sterilin jar**.
	  • Inform the laboratory that the specimen has been sent for analysis.
	
	Do not use excessive heat whilst taking the biopsy (cautery, diathermy, etc.). This destroys the enzymes in the biopsy and causes severe artefact which will limit analysis.
	
	Specimens **must** arrive within 1-2 hours of removal from the patient and before 4 pm. Urgent hospital transport or taxi is the most efficient way of delivery.
		80% within 14 days.
		
		Inflammatory myopathy cases - provisional report available in 3 working days

Peripheral nerve biopsy	2 x 10 mm pieces nerve tissue, stretched on stiff card and placed into 10% neutral buffered formalin (normal tension to avoid contraction). Send to the laboratory immediately.	90% within 14 days. In cases of vasculitis a provisional report

Specimen Type	Specimen Requirement	TAT
		can be provided in 4 working days
Products of conception	• Requires completed '**Consent to Histopathological Examination and Disposal of First Trimester Pregnancy Loss**' form in addition to a completed General Histopathology request form. • If no consent form is received, the specimen will be returned to the referring unit. • Any residual tissues left after processing for histopathological examination are communally cremated at Roselawn Crematorium, or returned to the mother if requested.	80% within 28 days.
Placenta	A fully completed Alder Hey request form should be submitted with the placenta (TP-2297 AlderHey Request Form, available on request) Placental Histopathological examination is available under the following clinical indications; • Stillbirth (antepartum or intrapartum) • Late miscarriage (20+0, 23+6) • Baby/babies born in unexpectedly poor condition and admitted to NNU demonstrating severe foetal distress. • Prematurity (less than 30 weeks gestation). • Intrauterine growth restriction (birth weight <3rd centile on customised growth chart). • Foetal Hydrops • Suspected maternal chorioamnionitis	95% within 3 months

Specimen Type	Specimen Requirement	TAT
Cervical cytology samples	• Do not use expired vials. • Ensure the entire plastic seal is removed from the lid of the vial and discarded before taking the smear. • The cervix should be visualized. • Immediately rinse the collected material vigorously into the vial. • Seal the vial and send to the lab. Clinical advice on cervical smear taking can be obtained by phoning: Dr D McGibben - Lead Cytopathologist on **028 9504 6141**. **If unsure of how to provide specimens for cytological investigation please contact the laboratory for advice.** **Requests for supplies** Requests for ThinPrep LBC vials, brushes and request forms should be directed to Screenlink: Phone/voicemail: 00353 1 4605270 Fax: 00353 1 4605248 E-mail: order@screenlink.net	Routine Up to 12 weeks Urgent cases 4 weeks

Specimen Type	Specimen Requirement	TAT
SPECIMENS FOR CYTOLOGICAL EXAMINATION		
Peritoneal/ pleural/ pericardial fluid	• Send no more than one litre of fluid. • Submit fresh fluid in a sterile wide-mouthed container. • **Do not use fixative.** • **Do not send in a plastic drain bag or a rigid Perspex drain box.**	90% within 7 days
Urine	• Submit a freshly voided sample in a sterile wide mouthed container. • Do not use fixative. • Prior to collection of the urine sample the patient should be well hydrated for 1.5 to 2 hours. • During the period of hydration the urine should be discarded. The next voided urine sample should be collected and submitted for cytological examination. • Early morning samples are of little value as these show marked cellular degeneration. • State on the request form if the patient has been catheterised, had any form of instrumentation, has stones in the urinary tract or is receiving chemotherapy.	
Bronchial washings and brushings	Bronchial washings should be submitted fresh, **unfixed.** Place the bronchial brush in the fixative and shake vigorously.	
Sputum	Three deep-cough early morning samples should be submitted.	
Fine needle aspirates	• Clearly label glass slides • Radiologists performing image-guided FNAs of deep sites may arrange for a biomedical scientist to be present by emailing dl-labs-rose-fna@belfasttrust.hscni.net, or phoning the laboratory. *Notification of the approximate time should be given as soon as it is known.*	

Specimen Type	Specimen Requirement	TAT
	Contact the laboratory again approximately 15 minutes before assistance is required. • Arrangements can be made for a pathologist to carry out fine needle aspiration of superficial sites by phoning the laboratory. • If appropriate, saline solution can be used to rinse the needle to allow collection of residual cells from the needle hub. Send this to the laboratory in an appropriately labelled sterile specimen container (e.g. white top Sterilin pot) along with any labelled slides and completed request form.	90% within 7 days
ERCP brushings	Fixative is provided in a pot by the laboratory. Place the brush in the pot and shake vigorously.	
Cerebro-spinal Fluid (CSF), cyst fluid or aspirate	1 ml or more of fresh unfixed fluid, preferably not bloodstained. If clinically indicated, label both the biohazard bag and the request form with a hazard group 3 (green) sticker.	
CUSA fluids	• Send at least 1 ml of fresh unfixed sample to the lab immediately. • Store refrigerated at 4 °C if a delay in transport is anticipated. • CUSA washings to be sent from all neurosurgery cases. • If clinically indicated, label both the biohazard bag and the request form with a hazard group 3 (green) sticker.	

SPECIMENS FOR IMMUNOFLORESCENCE EXAMINATION		
Dermatology specimens	• The tissue sample and / or blood sample must be **unfixed**. • Dermatology specimens consist of a skin biopsy / mucosal biopsy / conjunctival biopsy / blister fluid and a **clotted** blood sample. • Request transport medium from the laboratory. • Once the biopsy has been performed please arrange return transport to the laboratory. • Specimens in Michel's medium **must** be returned within 5 days.	99% reported within 7 days. 100% reported within 10 days
Renal specimens	• Request special fixatives kit from the laboratory (see appendix 2). • Arrange transport to the laboratory and phone to advise that the specimens are in transit. • Specimens in PBS **must** be returned to lab on the day of sampling. • If a kit is unavailable, the tissue specimen may be placed in saline & transported as quickly as possible to the laboratory (please phone the laboratory to advise that a specimen is in transit). • EM is performed when sufficient tissue is available.	70% reported within 7 days. 90% reported within 10 days.
SPECIMENS FOR ELECTRON MICROSCOPY (EM) EXAMINATION		
All specimens	Request EM fixative from the laboratory.	
Blood	Blood needs to have anticoagulant added. Cover the sample and transport to the laboratory as quickly as possible (please phone the laboratory to arrange this).	90% within 14 days.
Renal Specimens	See above for immunopathology.	

Referrals

For Referrals please liaise with a consultant pathologist as appropriate.

Please use the following forms when referring material to Cellular Pathology BHSCT:

TP-2334 Referral Additional Request Form
TP-2469 BMT Referral Form

The UKAS accreditation status of referral laboratories is regularly checked.

Human Papilloma Virus (HPV) Testing in Cervical Cytology
The aetiological role of Human Papilloma Virus (HPV) in the development of cervical cancer is well established. The NHSCSP has therefore introduced additional High Risk (HR) HPV testing on selected cervical cytology samples which has the benefit of fast tracking women at risk for treatment and also reduces unnecessary repeat tests. Samples for HPV testing are dispatched to Altnagelvin Area Hospital.

HPV Triage
The HPV Triage test is performed on routine cervical samples showing a low grade cytological abnormality. This includes borderline changes and mild dyskaryosis. A negative (not detected) HPV test allows a woman to return to normal recall whereas a positive (detected) HPV test initiates a referral to colposcopy.

HPV Test of Cure
The HPV Test of Cure (ToC) is performed on samples taken following large loop excision of the transformation zone (LLETZ) treatment for an abnormality, as per request from colposcopy clinician.

Referral Laboratories

Samples

Institution	Samples Referred	Address
Alder Hey Hospital	Placenta Paediatric postmortems	Alder Hey Hospital Children's NHS Foundation, Mortuary Dept. Eaton Rd, Liverpool, L12 2AP
Altnagelvin Area Hospital	HPV testing	Department of Cellular Pathology, Altnagelvin Area Hospital, Glenshane Road, Londonderry, BT47 6SB
Antrim Area Hospital	molecular testing, HPV	Department of Cellular & Molecular Pathology, Antrim Area Hospital, 45 Bush Rd, Antrim, BT41 2RL

Institution	Samples Referred	Address
Belfast City Hospital	Flow cytometry, morphology	Department of Haematology, C Floor, Tower Block, Belfast City Hospital, Lisburn Road Belfast, BT9 7AB
	PCR , Molecular testing	Department of Medical Genetics, A Floor, Tower Block, Belfast City Hospital, Lisburn Road, Belfast, BT9 7AB
Bristol Royal Infirmary	Head and Neck samples	Department of Histopathology Bristol Royal Infirmary
Cardiff University	Head and neck specimens	School of Dentistry, Cardiff University
Genomic Diagnostics	Molecular Tests	Genomic Diagnostics Laboratory, Genetic Medicine (6TH Floor), St Marys Hospital, Oxford Road, Manchester, M13 9WL
Genomic Health	Oncotype DX	Genomic Health, Inc. 301 Penobscot Drive Redwood City, CA 94063-4700
Great Ormund Street	Neuropathology samples, Further tesing opinion,	Camelia Botnar Labs, Great Ormund St hospital for sick children, London
HMDS	Lymphomas additional testing (ISH and ICC).	Haematological Malignancy Diagnostic Service St. James' Institute of Oncology, Level 3 Bexley Wing Beckett Street, Leeds, LS9 7TF
HSL (Analytics)	Further tests	HSL Advanced Diagnostics, 60 Whitfield St (cell path specialist centre)
Kings College Hospital	Liver studies	Institute of Liver Studies, Kings College Hospital, Denmark Hill, London, SE5 9RS
Poundbury	PD-L1 testing	Newborough House, 3 Queen Mother Square, Poundbury, Dorchester, Dorset DT1 3BJ
Queen Elizabeth Hospital, Birmingham	Molecular testing - PDL-1NRTK, FISH, ACGH	Department of Pathology, Queen Elizabeth Hospital Mindelsohn Way, Edgbaston, Birmingham, B15 2WB
Queen Elizabeth Glasgow	Eye specimens	Department of Pathology, Queen Elizabeth University Hospital Govan Road, Glasgow, G51 4TF
Royal Marsden	Molecular tests	Head of Clinical Genomics, The centre for Molecular Pathology, The royal Marsden NHS Foundation Trust, Cotswold Rd, Sutton, Surrey SM2 5NG

Institution	Samples Referred	Address
Royal National Orthopaedic Hospital Middlesex	Soft tissue and bone specimens, further testing, second opinion.	Histopathology Department, Institute of Orthopaedics, Royal national Orthopaedic Hospital NHS Trust, Brockley Hill, Stanmore, Middlesex HA7 4LP
Royal Victoria Infirmary	Further tests, opinions.	Cellular Pathology, L3 New Victoria Wing Royal Victoria Infirmary, Queen Victoria Road, Newcastle upon Tyne, NE1 4LP
RVH, Belfast	CMV testing	Virology Department, Kelvin Building
Sheffield Teaching Hospital	Head and neck samples, further testing, opinion	Sheffield Teaching Hospital NHS Foundation Trust, Royal Hallamshire, Sheffield
Source Bioscience	GI specimens Skin specimens	Source Bioscience, Medical Solutions Nottingham Business Park, Nottingham, NG8 6PX
UCL – Institute of neurology	Neuropathology molecular testing, tau / amyloid testing	Queen Square, London, WC1N 3BG

National Referral labs

Institution	Samples Referred	Address
National Amyloidosis Centre	Amyloid	National Amyloidosis Centre, UCL Division of Medicine Royal Free Hospital, Rowland Hill Street, London, NW3 2PF
NCG Pseudomyxoma Peritonei Centre	Pseudomyxoma peritonei cancers	NCG Pseudomyxoma Peritonei Centre, Basingstoke & N. Hampshire NHS Foundation Trust, Aldermaston Road, Basingstoke, Hampshire, RG24 9NA
National CJD surveillance unit	CJD	The National Creutzfeldt-Jakob Disease Research and Surveillance Unit Bryan Matthews Building Western General Hospital Crewe Road Edinburgh EH4 2XU
Newcastle University	Muscle	Wellcome centre, Newcastle Mitochondrial NCG Diagnostic Laboratory, Newcastle University Medical School, Framlington Place, Newcastle upon Tyne, NE2 4HH

Appendix 1 - CSF 14-3-3 analysis

Before sending a sample to the laboratory for 14-3-3 analysis, the patient's clinician should make direct contact with the **National CJD Surveillance Unit** (Tel: 0131 537 1980) in Edinburgh where they can discuss the patient's clinical picture with one of the unit's specialist staff. They will give guidance as to whether the sample should be directed to Cellular Pathology for onward dispatch to Edinburgh or sent directly. If the cellular pathology laboratory receives the specimen, contact will be made with the National CJD Surveillance Unit to arrange for onward transportation.

When requesting CSF samples for 14-3-3 analysis the CJD Surveillance Unit has produced its own specially formatted request form which has been circulated to the Neurology and Neurosurgical Wards, this **must be** completed and forwarded to the laboratory along with the sample. If a copy of this form is not available on the ward the clinician may request an emailed copy be sent to them.

CSF samples requiring 14-3-3 analysis must be sent to the cellular pathology laboratory as soon as possible. For this to happen in a timely fashion the laboratory should be contacted Monday to Friday 8.45 am to 5.00 pm (028961 50216) for arrangements to be made for the dedicated laboratory courier to collect the sample.

Ideally 0.5- 1.0 ml of CSF fluid should be submitted for testing. Samples for 14-3-3 analysis **must not** be blood stained as this will render the sample unsuitable for testing. If cytological examination is also required a separate sample should be submitted. The sample(s) **must be placed in a leak proof sample container** and be **clearly labelled** with the patient's details and a hazard group 3 sticker, and placed in a "Danger Risk of Infection" bag which also contains a pouch where the appropriately completed and hazard group 3 labelled pathology request form and CJD Surveillance Unit request form can be placed to accompany the sample.

Copies of 14-3-3 prion testing results will be forwarded directly to both the requesting consultant and the laboratory.

Appendix 2 - instructions for renal biopsy kits

Kit contents

10% formalin for light microscopy.
PBS for immunofluorescence.
2% gluteraldehyde for electron microscopy.
Dental wax.
Request form.

Procedure

Ideally there should be **3 cores**; 1 each for light microscopy (LM), Immunofluorescence (IMF) and electron microscopy (EM). The fixatives for each are labelled as such.

Usually the cores are collected and fixed at the same time to allow best division of material in the laboratory.

1. Place the core on dental wax to keep the core flat.
2. Drop the wax and core into PBS.
3. 2nd core is dropped into glutaraldehyde.
4. 3rd core is dropped into 10% formalin.

It is essential that there is NO cross contamination of fixatives.

Samples in PBS should be receipted in the laboratory on the day of sampling to preserve sample quality.

If there is only one core and both IMF and LM are required it is best to drop the core into PBS as this can be stained for IMF and then reprocessed for LM. Please note that reprocessing a single core for light microscopy after it has been frozen for immunofluorescence results in significant freeze-thaw artefact which can make interpretation of the light microscopic findings difficult. If electron microscopy is also then required on this tissue, the same applies with regards to freeze-thaw artefact and there may be insufficient tissue remaining for this examination. Single cores should therefore be avoided if possible.

Laboratory phone number: 02896150215
Laboratory mobile number: 07717805516