Cellular Pathology

The cellular pathology department provides a comprehensive service in general histopathology, neuropathology, paediatric and perinatal pathology, and diagnostic cytopathology. Included in the department are the mortuary and the Biomedical Imaging Unit (BIU).

The department is integrated with the University of Southampton's department of pathology which has a major role in medical student education and has active research programs in both applied and basic experimental pathology. The department has an important role in the training of junior histopathologists and biomedical scientists. The department is a major referral centre and the consultant pathologists each specialise in one or more area of pathology. Regional departments of paediatric and perinatal pathology and neuropathology are based in the department. The laboratory is recognised by the Institute of Biomedical Science (IBMS) for training.

Key contacts

Results and General Enquiries:

Histopathology:	cellpath@uhs.nhs.uk 023 8120 6443
Neuropathology:	
Paediatric pathology:	
Cytopathology:	
Cytology FNAs & clinics at SGH Bleep:	2968
Mortuary:	mortuary@uhs.nhs.uk 023 8120 6306
Biomedical Imaging Unit:	biu@uhs.nhs.uk 023 8120 4807
Research unit:	SRCH@uhs.nhs.uk
Dr Rushda Rajak, Joint Clinical Lead:	Rushda.rajak@uhs.nhs.uk
Dr Leon Veryard, Joint Clinical Lead:	Leon.veryard@uhs.nhs.uk
Dr Mark Walker, Joint Clinical Lead (Paeds & Neuro):	Mark.walker@uhs.nhs.uk

About our services

Histopathology

The histopathology section offers a histological and immunohistochemical diagnostic service for the Wessex region. Discussion and advice on clinico-pathological correlation and therapeutic implications is readily available to all medical staff in both hospitals and in general practice.

Neuropathology

The neuropathology section offers a specialist tissue diagnostic service for diseases of the brain, spinal cord, nerves, muscle, and eyes for the Wessex region. Discussion and advice on clinico-pathological correlation and therapeutic implications is readily available to all medical staff, both in hospitals in the region and in general practice.

Cytopathology

Diagnostic cytology includes a wide range of fine needle aspirations, endoscopic brushings and other exfoliative cytology specimens received from clinical directorates and General Practitioners. The Cytopathology department also offers rapid cytological diagnosis for the ENT clinic, Endoscopic Ultrasound clinics for Gastrointestinal, Pancreatic and Bronchial diseases, and for the Thyroid clinic at Southampton General Hospital (SGH).

Paediatric and Perinatal Pathology

The paediatric and perinatal pathology section offer a Consultant lead service to UHS and other local Trusts. This includes specialist reporting of diagnostic samples from children and a full perinatal/paediatric postmortem service to both local and regional hospitals.

Digital pathology

As of July 2024, the department provides a digital pathology service for histopathology, which enables reporting on digitally scanned slide images. This also creates opportunities for learning and collaboration with other digitised cellular pathology services. The service has undergone a thorough validation & clinical safety assessment.

Please be advised that all slides referred to us will now be digitally scanned. To ensure a smooth and efficient reporting process, we kindly ask that all submitted slides adhere to the following requirements:

- No coverslip or cover film overhangs

- No slide label overhangs
- Slides must be clean and free of debris

Thank you for your cooperation.

Mortuary

The Mortuary at University Hospital Southampton (UHS) provides comprehensive services for both the hospital and the wider community. Acting as the public mortuary, we also support HM Coroner for Southampton and the New Forest. We are proud to hold an HTA (Human Tissue Authority) licence, ensuring compliance with the highest standards for the storage of tissue following post-mortem examinations. Our team performs:

- Hospital-consented post-mortems
- Coroner-directed post-mortems
- Home Office-authorised paediatric cases

Our facilities include:

- Specialist paediatric and perinatal pathology areas
- A dedicated containment suite for managing high-risk or infectious cases

Opening Hours

- Monday to Friday: 07:30 – 16:00
- Weekends & Bank Holidays: On-call service available for emergencies only via switchboard 02380777222

Useful Links

- Human Tissue Authority (HTA)
- https://www.hants.gov.uk/birthsdeathsandceremonies/coroners
- https://staffnet.uhs.nhs.uk/OurTrust/Peopleandplaces/Departments/TrustHQ/Bereavementcare/How-to-arr…
- https://staffnet.uhs.nhs.uk/OurTrust/Peopleandplaces/Departments/TrustHQ/Bereavementcare/Post-morte…
- https://staffnet.uhs.nhs.uk/TrustDocsMedia/DocsForAllStaff/General/Corporate/CareofthePatientAfterD…

Biomedical imaging unit

The Biomedical Imaging Unit is a multi-disciplinary research and diagnostic facility jointly managed by Cellular Pathology and the University of Southampton. It provides transmission and scanning electron microscopy, X-ray microanalysis, X-ray micro-CT, confocal laser scanning microscopy, spatial biology, and image analysis services.

We are part of the nationally commissioned Primary Ciliary Dyskinesia (PCD) service and provide transmission electron microscopy (TEM) diagnosis of renal, muscle, nerve, and other tissues.

We participate in a dedicated UKNEQAS TEM external quality assurance scheme in which we have performed highly, to date, without exception and have a well-established, comprehensive quality management system in place. As part of UHS Cellular Pathology, the BIU is accredited to ISO 15189: 2022 (lab no. 6013).

The Unit is open and staffed from 06:00 – 18:00 Monday to Friday (except bank holidays). Samples sent via courier/postal service should be sent to arrive within these hours to minimise the risk of undelivered or misplaced samples.

Research

The Southampton Research and Clinical Histopathology Samples (SRCH) team is a specialist research unit within Cellular Pathology. The department is authorised to release residual tissue for ethically approved academic and commercial research. SRCH plays a key role in clinical trials and employs techniques including tissue microarrays, digital imaging techniques and multiplex immunohistochemistry. For enquiries, please contact SRCH@uhs.nhs.uk

Service hours

All sections (excluding mortuary, please see above) are open between 7.00am and 6.00pm, Monday to Friday, 7.00am to 5.00pm Saturday and bank holidays (excluding 25th, 26th December, 1st January). Please note there is no pathologist service on Saturdays and bank holidays. Additional out of hours services can be contacted via the operator on extension 100 or 02380777222.

Quality management

The department of cellular pathology will comply with the standards assessed by UKAS and the Human tissue Authority, and is committed to:

- Staff recruitment, training, development, and retention at all levels to provide a full and effective service to its users.
- The proper procurement and maintenance of such equipment and other resources needed for the provision of the service.
- The collection, transport, and handling of all specimens to assure quality of performance of laboratory examinations.
- The use of examination procedures that will ensure the highest achievable quality for all tests performed.
- Reporting results of examinations which are timely, confidential, accurate and clinically useful .
- Assessment of user satisfaction, in addition to internal audit and external quality assessment to produce continual quality improvement.

For a detailed list of tests for which the department is accredited to ISO15189 standards please refer to:
https://www.ukas.com/wp-content/uploads/schedule_uploads/00007/8178-Medical-Mulitple.pdf

New tests

Please note, new validated tests will not be accredited until they have an extension to scope assessment.

User satisfaction and complaints

In order to help improve service, we may ask you to complete a questionnaire. The value of the information obtained from these surveys is appreciated, and advanced thanks is offered in anticipation of your assistance in completing them. For ways to feed back or get involved with patient groups, please visit the website here.

The department welcomes constructive comments on any aspect of its services. A Quality Manual describing all aspects of our Quality Management system is available for inspection by users on request.

Information on how to raise a complaint and the handling concerns and complaints policy can be found here:
https://www.uhs.nhs.uk/contact/tell-us-about-your-experience/raising-concerns-or-making-a-complaint

Consent

Please see the following document available on the UHS website:
http://staffnet/TrustDocsMedia/DocsForAllStaff/Clinical/Consentpolicy/ConsentPolicy.pdf

Patients attending adult venesection services will be asked to give verbal consent prior to blood specimens being collected.

Availability of clinical advice

Consultants within each discipline are available to provide help with the interpretation of results and other clinical advice. Please refer to 'Key Contacts'.

Quality assurance

All histopathologists take part in one or more EQA schemes applicable to their scope of practice (including but not limited to general histopathology, neuropathology,

paediatric, liver, skin, urological, gastrointestinal, head and neck, urological, lung, lymphoma, and breast pathology).

The laboratory participates in technical EQA schemes for the region. The laboratory is signed up to several technical UK NEQAS schemes covering histopathology, diagnostic cytology, immunohistochemistry, and transmission electron microscopy as well as interpretive schemes for crystal analysis in synovial fluids and immunohistochemistry markers. A full list of EQA schemes can be obtained on request.

Regular clinico-pathological meetings are held with clinicians from the different specialties, at which pathologists with a specialist interest in the field concerned review and discuss selected cases in the presence of the clinical and radiological teams.

Completion of request forms

A completed request form **must** accompany all specimens. This must clearly identify patient, specimen type, requesting clinician / GP and source of the request (ward, clinic, surgery). The date taken and where extra copies of the report should be sent should also be recorded. The request form will be handled by staff outside the laboratory area so must be free of contamination by blood or body fluids.

The spelling of names must be correct, with matching details clearly presented on both the specimen and the request form. Specimens that do not meet these requirements cannot be processed by the laboratory until the correct details have been provided by the requesting doctor which will lead to delayed processing of specimens. The requesting doctor will be asked to resolve any issues that arise from incorrect completion of patient specimen/request form details and sign to accept responsibility for identification of the specimen.

It is the responsibility of the requesting clinician to ensure that the clinical details section contains complete and accurate clinical information. This should include relevant clinical history, examination findings and radiological and laboratory results.

As of November 1st 2020 all histopathology requests from UHS clinicians should be completed using eQuest. Handwritten requests may be rejected by specimen reception and acceptance of the request will be at the discretion of the speciality pathologist on the day the request is received.

When multiple specimens are taken from the same patient it must be clear which specimen on the request relates to which pot and the specific site from which it was taken. When labelling specimens, sequential letters may be used to clearly identify them (A,B,C…etc.). For eQuest specimens, please create a separate specimen for each pot so a label can be generated. The patient and specimen details must be on the pot itself and not just the lid of the pot.

Please note: Due to the setup of the laboratory information management system the maximum number of pots that can be booked in under one specimen number is 23; if you have more than 23 pots these will need to come in on multiple requests.

The importance of accurate and correct labelling, and presentation of samples, cannot be overemphasised - the laboratory may not be able to process samples received without compliance with the full requirements (see below) without which this could result in the sample having to be disposed.

Specimens may be rejected (and therefore potentially delay reporting) if the following criteria are not met relating to the labelling of the sample and the request form:

	Essential	**Desirable**
Sample	1. NHS or Hospital number* 2. Patients full name or unique coded identifier 3. Date of birth 4. Patient Identification label MUST be attached to the sample container, NOT just on the lid.	5. Date and time 6. Nature of sample, including qualifying details, e.g. left, distal etc especially if more than one sample per request is submitted
Request Form	1. NHS or Hospital number 2. Patient's full name or unique coded identifier 3. Date of birth 4. Gender 5. Patient's location and destination for report 6. Patient's consultant, GP, or name of requesting practitioner 7. Investigation(s) required	8. Clinical information including relevant medication (which is sometimes essential) 9. Date and time sample collected (which is sometimes essential) 10. Patient's address including postcode 11. Practitioner's contact number (bleep or extension)
Other Required Acceptance Criteria	1. The number of specimens outlined on the form must match the number of specimens received. 2. Specimen received with same details to request card 3. POC specimen must have two copies of the consent form (white and blue) and an application for cremation form.	

*Use of NHS number of paper/electronic patient records is mandatory requirement included within the NHS Operating Framework 2008/9

Identification of high-risk specimens

For the protection of laboratory staff the request form and any specimens collected from patients **with known or suspected infection** due to a **Hazard Group 3** biological agent must be labelled as **'High Risk'**. It is the duty of the clinician to inform the laboratory if the patient is high risk. Please note that any specimens which are known to be potentially dangerous of infection may not be rapidly processed and may require prolonged fixation in formalin. The staff completing the respective request form have a duty of care to everyone to ensure that all / any risks the samples present are clearly indicated within the request form. These agents include:

- Human Immunodeficiency Virus (HIV) 1 and 2
- *Salmonella typhi* / *Salmonella paratyphi*
- Hepatitis B virus (HBV)
- Hepatitis C virus (HCV)
- *Mycobacterium tuberculosis*
- Human T Lymphotropic Virus (HTLV) 1 and 2
- *Brucella sp.*
- COVID-19

and the causative agents of:

- Anthrax
- Creutzfeldt-Jakob disease
- Rabies
- Yellow Fever
- Plague

Histopathology

Availability of results

UHS: results are available via E-Quest once authorised and printed copies are sent to the source.
Please note, results from manual request forms will not be sent back to a clinician worklist but will be available in the results section of CHARTS. It is the responsibility of the requesting clinician to check these results.

General Practice: results are available either electronically or by printed copy.

Post mortem results: a preliminary cause of death is sent by email to the coroner and a full post mortem report follows later as a printed copy.

Please note that any caller's identity must be confirmed before giving results over the telephone. We are unable to give results directly to patients or their relatives.

Results are available on E-Quest when they have been authorised by the reporting Consultant Histopathologist. Preliminary results may be available by discussion with the Consultant Histopathologist.

Biological reference intervals and clinical decision limits

Immunohistochemistry is assessed by the reporting pathologist in the presence of appropriate positive and negative control material as required. For predictive/prognostic immunohistochemistry, reporting will include a numerical score where appropriate, with reference to the latest published evidence in terms of relevant scoring system(s), professional guidelines, and clinical trial data. Please contact the reporting pathologist and/or cellular pathology department if further information is required.

Turnaround times

The Royal College of Pathologists, in their document "Key assurance indicators for pathology services – November 2019" state *"Local patient pathways, agreed with requesters, shall include anticipated turnaround times for all relevant laboratory investigations."*

The locally agreed target for UHS Cellular Pathology is that at least 75% of specimens should be reported within 10 calendar days. These targets will be periodically reviewed, and user feedback sought every 2 years via the user feedback survey to ensure ongoing suitability of these targets.

In collaboration with local service users, UHS Cellular Pathology will publish its aspirational turnaround times (TAT) and provide quarterly updates to users on actual performance against these targets.

Within these guideline periods, the time taken for a result to be available varies depending upon the type, size, and complexity of the specimen as well as the clinical urgency (see below).

Please note that certain specimen types (those including bone or nail) may take longer to process and the turnaround time target may not be attained for these particular specimen types

The UHS Cellular Pathology department formally audits specimen turnaround times against the local benchmarks on a weekly and monthly basis.

Cases requiring prolonged periods of decalcification fall outside the guidelines, as do cases sent for external reporting/expert opinion or specialist testing. Complex specimens may also require additional time for reporting.

Locally agreed TAT for gastrointestinal biopsy specimens

The department has a local agreement for gastrointestinal biopsy specimens as follows:

Category	Clinical details	Proposed TAT
1	Malignant biopsies, polyps with suspect features, Ischaemia, GVHD, severe colitis, polyps over 2cm	75% in 10 days
2	Barrett's with dysplasia, Gastritis, atrophy	75% in 14 days
3	Normal mucosa, Barrett's without dysplasia, Reflux, Candida, coeliac disease, IBD/ colitis (mild/ quiescent disease), eosinophilic oesophagitis	75% in 21 days

Please note samples are triaged into these categories by the requester and it is down to the requesters discretion whether some samples will fall into a different category based on other suspicious features.

Locally agreed TAT for dermatology specimens

The department has a local agreement for dermatology specimens as follows:

Specimen type	Proposed TAT
24 hour skins	100% in 24h
48 hour skins	100% in 48h
72hr urgent biopsies	100% in 72hr
Periorbital rapid paraffins (oculoplastic) One-week turnaround times (from derm or OMF/ENT) (e.g. SCC/BCC excision, wound left open pending pathological assessment of margins)	100% in 5 days
Melanocytic lesions - e.g. ?MM/DN (biopsies or excisions) Biopsies for ?SCC ? AFX/PDS/sarcoma ? MM	90% in 14 days
All other specimens (e.g. BCCs, benign cysts, lipomas etc.)	75% in 21 days

Urgent specimens / 2 week wait pathway patients

Specimens that require urgent reporting (<7 days) must be delivered to the laboratory as soon as possible after the sample has been obtained from the patient. Contact details of the requesting clinician should be clearly indicated on the request form. The patient request form should be appropriately flagged as urgent to alert the laboratory team. Please include helpful information eg. dates of urgent follow up clinic appointments or surgical reconstruction dates, wherever possible.

In the event of **very urgent patient samples** please telephone and/or email the Cellular Pathology Department to liaise directly with the appropriate subspecialist consultant pathologist (Tel: 023 8120 6443). More rapid processing of very urgent small specimens may be arranged following discussion with the appropriate pathologist, enabling a preliminary result to be available 24-48 hours from the sample being obtained in straightforward cases. However, rapid processing may not be available on tissue known to be danger of infection (see above).

Urgent results of FNA cytology and same day results for other cytology specimens may be available by special arrangement with the laboratory.

Cases where the microscopic findings are considered by the reporting histopathologist to be of clinical urgency may be communicated to the clinical team by telephone and/or email.

Intra-operative Consultation (Frozen section) Service

Predictable requests for frozen sections must be arranged in advance by telephoning the laboratory (ext. 8966 for neuropathology, ext. 4879 for histopathology) and giving details of the patient, theatre, and operative procedure. This should take place as soon as the patient is booked for theatre. All Consultant Pathologists have duties in many locations in the hospital and it is important that they are informed of potential frozen section requests so they can be available to deal with the samples. Unpredictable requests should be telephoned to the same numbers as soon as the requirement for frozen section diagnosis is realised. Fresh tissue must be dispatched by theatre / hospital porter for immediate delivery to the laboratory on Level E, South Block, SGH. Request forms should be clearly labelled 'FROZEN SECTION' and the contact telephone number for delivery of results should be clearly stated. The department aspires to report a frozen section within 30 minutes of receipt however the overall TAT depends upon the complexity of each case. We treat every case requiring frozen sections with the utmost urgency.

Mohs micrographic skin surgery

UHS Cell Path laboratory provides support to the Dermatology Mohs skin clinics held in the Max-fax unit on level C of the main hospital.
Mohs micrographic surgery is mainly used for the treatment of basal cell carcinoma (BCC). Indications for Mohs include tumours occurring on the face where a good cosmetic result is required, BCCs that are difficult to see or where there has been a recurrence.
All patients are booked through Dermatology for a 'one-day' clinic.
The lesion is removed and checked for tumour under the microscope, if present then a further piece is removed until no tumour remains.
The laboratory provides at least one trained Biomedical scientist for each session. Their role includes handling and orientation of sample, embedding, cryo-sectioning, staining and QC of all skins.

Unexpected findings

The Royal College of Pathologists has set out guidance for the communication of critical and unexpected results.

'Pathologists should consider the following examples of situations in which results might need to be communicated urgently to clinicians, outside the normal parameters for the electronic delivery of laboratory results.

1. Cases where there is a predictable degree of urgency. Such cases would include intraoperative frozen sections, some medical renal biopsies, and some biopsies from organ transplant patients where prompt assessment according to local protocols will determine the management of the patients.
2. Cases unexpectedly found to be infectious. The clinical implications and severity of the infection, risk of transmission of infection to staff, other patients and the public, and the need for immediate contact tracing should be considered by the reporting histopathologist. Consideration should also be given as to whether or not the condition is a notifiable disease.
3. Expected malignancy case where no malignancy is found in the specimen. Frequently this will result in extra sections and/or levels being examined by the reporting pathologist. The requesting clinician may benefit from a warning that further laboratory work is underway and may be able to provide additional relevant clinical history. If no malignancy is found at the end of a thorough histopathology search, there may be cases where the possibility of a wrong site surgery never event should be considered. Such cases should be discussed with the requesting clinician in the first instance.
4. Biopsy or removal of an unexpected organ. This is important to communicate immediately to ensure clinical follow up for unexpected clinical complications and repeat biopsy of the correct organ. Please note, some organs are regularly biopsied en passant, e.g. rectal mucosa in transrectal ultrasound biopsies of the prostate; this does not constitute an unexpected finding as covered by this guidance.
5. Unexpected finding of malignancy. This is important where the case would not routinely be scheduled for multidisciplinary meeting discussion and there

is a risk that the histopathology report may be missed by the requestor. An example of this would be a melanoma removed by a GP who anticipated that the lesion was a benign lesion.

6. Findings that trigger a particular referral pathway. An example of this would be molar pregnancy identified in products of conception.'

Further guidance can be found at:
https://www.rcpath.org/uploads/assets/bb86b370-1545-4c5a-b5826a2c431934f5/The-communication-of-critical-and-unexpected-pathology-results.pdf

Out of Hours service

There is no Out of Hours Service provided by the Consultants in Cellular Pathology. The Cellular Pathology Laboratory provides an out of hours service for:
1) Receiving of specimens for rapid processing
2) Receiving of specimens for the sampling of fresh tissue (genetics, freezing etc)
In the event of the clinical need for rapid processing out of hours then the following steps should be taken:
1) The Clinical Consultant should discuss the case with the on call Biomedical Scientist so that the optimum sample may be obtained and the optimum processing schedule be followed.
The Cellular Pathology technical out of hours service can be contacted via the operator on extension 100 or 02380777222.

Specimen collection

If service users are in any doubt as to how to present a particular sample to the Cellular Pathology laboratory for analysis then it is vital to contact either the laboratory directly or the on-call Biomedical Scientist to avoid inappropriate treatment compromising the sample. Details can also be found in the Transport of pathology specimens by transport services/portering services guidelines, found on Staffnet.

The tissue fixative used routinely for histopathology is 10% neutral buffered formalin (formaldehyde). Exceptions are listed in the table below:

Specimens for routine histopathology / neuropathology	Formalin
Specimens for frozen section	Fresh
Muscles and nerves	Fresh
Electron microscopy	Glutaraldehyde
Skins for immunofluorescence studies	Fresh or in Michel's solution or wrapped in saline soaked gauze. It is recommended that a sample may be in

	Michel's solution for a maximum of 7 days.
Rectal biopsies for ? Hirschsprung's disease	Fresh
Lymph nodes for genetic marker studies	Fresh

Tissue samples should be placed into 10% Neutral Buffered Formalin solution fixative as soon as possible after removal from the patient. Details as to where to obtain sample containers and this reagent can be obtained from the laboratory.

With small biopsies in particular, it is vital not to let the specimen dry out. The recommended volume of fixative is minimum of ten times the volume of the specimen, it is therefore important not to squeeze specimens into small containers. If in doubt, choose a larger container as poor fixation will hinder or prevent accurate histological diagnosis. Fresh and urgent specimens must be clearly marked as such. **A 'DANGER OF INFECTION' sticker must be applied** to all specimens known to be an infection hazard.

Opening or dissecting excised specimens before it is sent to the department must be resisted. Subsequent fixation of a partly incised specimen may cause distortion and hinder anatomical orientation. In the case of excised tumours, it may then be impossible to identify surgical planes of excision.

Containers of formalin must be securely closed and users are recommended to read the Trust policy on the *transport of specimens*. Formaldehyde vapour is a well-recognised respiratory irritant, so skin contact with formalin solution must be avoided, as repeated exposure may cause dermatitis in some individuals.

Fresh specimens

It is desirable for some types of specimen to be delivered in a fresh state (without fixative) to the laboratory. These should be clearly marked and the laboratory should be given advance warning of the delivery of such a specimen (023 8120 4879 / 3768) so that staff are prepared for the arrival. If such a specimen is expected to arrive out of normal working hours then the duty Biomedical Scientist should be contacted via the hospital switchboard.

The following specimens may be sent fresh (unfixed):

Lymph node biopsies and spleens

These should be sent FRESH for genetic marker studies. The laboratory must be notified in advance and the specimen transport bag labelled 'URGENT SPECIMEN - DELIVER IMMEDIATELY TO HISTOPATHOLOGY LABORATORY'. Contact the lymphoreticular pathologists regarding these specimens (ext. 6443).

Lungs

Fresh lungs should be sent to the laboratory in a labelled plastic specimen container (dry) double sealed in plastic bags.
The laboratory must be notified in advance and the specimen transport bag must be labelled 'URGENT SPECIMEN - DELIVER IMMEDIATELY TO HISTOPATHOLOGY LABORATORY'.

Skin biopsies for immunofluorescence

These samples should always be presented to the laboratory fresh between 0900 and 1630 and clearly labelled for IMF testing.
All fresh specimens must be clearly labelled as such and sent immediately to histopathology – **any delays in transportation will severely compromise the integrity of the sample(s). If sending a sample in Michel's medium please ensure the sample arrives within 7 days. Please note the laboratory does not provide Michel's medium.**

Rectal biopsies ? Hirschsprung's disease

The paediatric pathologist must be contacted in advance (ext. 6443). Fresh specimens must be labelled FRESH / URGENT and sent immediately to the laboratory. Where intra-operative frozen sections are required, paediatric pathologist, Dr Bhumita Vadgama (ext. 4502), must be contacted in advance.

Frozen section - eye or skin biopsies

Requests should be made in writing well in advance to Dr Vidhi Bhargava (ext. 6664). The tissue should be dispatched by theatre / hospital porter for immediate delivery to the laboratory, Level E, South Block, SGH.

Specimens for frozen section should be sent fresh. The request form should be clearly marked FROZEN SECTION and should include a telephone / bleep number to be used for telephoning the result.

Renal biopsies

The renal service is provided by Professor Ian Roberts, Oxford.

Instructions for other specimen types (fixed):

Colonic mapping biopsies

Endoscopic mapping biopsies should be attached to a strip of Millipore (nitrocellulose) filter before fixation. The biopsies should be arranged in order in a single row as close together as possible. Cut off a corner of the filter strip to indicate the first biopsy. A diagram should be stamped (or drawn) on the request form to indicate the site and number of each biopsy. A detailed procedure is available from the laboratory (ext. 4879).

Special diagnostic biopsies

Contact the appropriate pathologist when the selection of tissue requires special consideration or fixation, or the biopsy is of special interest or difficulty.

Products of conception

Products of conception (POC) specimens that require cremation after processing must be accompanied by both a 'permission form' and an 'application for cremation' form. The legislation surrounding this is very stringent, and the forms need to be signed and completed with care, **the department can not accept these specimens if the correct documentation is not provided**. The processing of these samples will be delayed until the consent has been received. Forms can be obtained from the Princess Anne Hospital (PAH).

For POC specimens or placentas requiring genetic testing, please send directly to Salisbury. These should be submitted fresh.
If both histology and genetics are required the sample should be split into 2 separate samples and the fixed specimen submitted to histology.

Time limits for requesting additional information

Formalin fixed wet tissue is stored for six weeks after authorisation of the report, before being disposed.
Histological slides are stored for at least 10 years.
Paraffin wax blocks are stored for a minimum of 15 years.
Diagnostic Cytology samples are retained for 3 days after authorisation of the report.

Requests for additional investigations should made after discussion and agreement with the reporting Consultant Histopathologists.

Referred tests / laboratories

A list of referral laboratories used by the department is available by contacting the department. Any specimens/slides referred off site will be referenced within the report.

Neuropathology

Frozen sections

Predictable requests for frozen sections must be arranged in advance by telephoning the laboratory (ext. 8966 for neuropathology) and giving details of the patient, theatre, and operative procedure. This should take place as soon as the patient is booked for theatre. All Consultant Pathologists have duties in many locations in the

hospital and it is important that they are informed of potential frozen section requests so they can be available to deal with the samples. Unpredictable requests should be telephoned to the same number as soon as the requirement for frozen section diagnosis is realised.
Fresh tissue must be dispatched by theatre / hospital porter for immediate delivery to the laboratory on Level E, South Block, SGH. Request forms should be clearly labelled 'FROZEN SECTION' and the contact telephone number for delivery of results should be clearly stated. Neuropathology frozen section service provides frozen section slides as well as smears from the fresh tissue. A consultant neuropathologist is responsible for the handling and orientation of the sample, as well as the preparation of smears. A biomedical scientist is responsible for embedding cryo-sectioning, staining of frozen sections and smears and QC of the neuropathology frozen. The department aspires to report a frozen section within 30 minutes of receipt however the overall TAT depends upon the complexity of each case. We treat every case sent for frozen sections with the utmost urgency.

Muscle and nerve biopsies

The clinical details for muscle and nerve biopsies should be discussed with a Neuropathologist by writing / e-mail / telephone before the biopsy is taken. Technical and logistic details for taking muscle and nerve biopsies should be discussed with the laboratory in advance (ext. 4882).
Muscle and nerve biopsy specimens **MUST** be sent fresh **NOT** in saline and should be clearly marked for attention of Neuropathology.

All muscle biopsies must be accompanied with the completed form LF 120 075 – U.H.S MUSCLE BIOPSY REQUEST CHECKLIST, which can be downloaded from the following location: http://www.uhs.nhs.uk/HealthProfessionals/Extranet/Services/SUHTPathologyServices/Handbook/CellularPathology.aspx

Enucleated globes, evisceration specimens, corneas and orbital exenteration specimens should be fixed in 10% neutral buffered formalin. The request should be marked for Neuropathology.

Cytopathology

Non-gynaecological specimens

Slides where produced must be labelled with patient surname, forename, and DOB. These details should be written on the frosted edge using pencil. Slides should be transported in slide boxes which should have an E-quest label applied to the outside. If a fluid is collected, then the specimen container should be labelled and all required fields completed to match the patient with the request form and laboratory database and specify collection date/time and requesting source.

Unlabelled or wrongly labelled specimens must be corrected by the originator of the request i.e. we will ask you to come to the department to correct the details and may even lead to non-invasive samples being discarded if it is considered the risk is too high.

Endoscopic brushings

Material should be gently rolled onto one or two slides and generously spray fixed without delay.

Fine needle aspirates

Assistance is available at SGH for FNAs to prepare the slides. Contact the SGH laboratory (Ext. 6443 or Bleep 2968).

Urine cytology

A 25ml sample, not an early morning specimen, should be forwarded to the laboratory without delay in a sterile bottle. The request form should state time, date of collection and whether it was a catheter or post cystoscopy specimen.

Cyst fluids, washings

Fluid should be collected into a sterile bottle and forwarded to the laboratory without delay. Do not use powdered gloves when collecting synovial fluid as this may contaminate the specimen.

Serous fluids

Fluid should be collected into a sterile 25ml bottle. A second bottle of fluid if available will allow for further cytological investigations if required. Do not send large volumes of drained fluid or drainage bottles

Sputum

An early morning deep cough specimen should be collected into a sterile container and sent without delay. Send each specimen as soon as it is taken. Sputum cytology has low sensitivity and specificity for the diagnosis of bronchial carcinoma.

Skin scraping

Smear the scraping onto a slide and fix immediately with Cytofix, obtained from the department.

Biomedical Imaging Unit (BIU)

Specimens for examination under the electron microscope should be discussed with the appropriate pathologist and/or the BIU **in advance of sending the sample**. Special fixative containing glutaraldehyde and advice regarding fixation methods are below or can be obtained from the BIU.

Tissue Sampling

Electron microscopy is sensitive to tissue handling procedures. Whilst we recognise and appreciate that non-UHS service users may prefer to determine their own laboratory procedures relating to the fixation and handling of the tissue samples, service users are reminded that fixation and handling procedures affording satisfactory light microscopy fixation may not be suitable for ultrastructural studies.

Therefore, we strongly recommend that all service users meet the following specifications for all tissue samples to be processed for EM. Failure to do this is likely to result in sub-optimal tissue preservation and may place limitations on the ultrastructural interpretation of the sample. Deviations from these recommendations by service users should be discussed and agreed with the BIU before specimens are sent.

Samples for EM should be sized as follows:

- Core biopsy – no more than 1mm in diameter and up to 3mm in length
- Other biopsies – no more than $1mm^3$

Fixative should be stored at 4°C (fridge temperature), removed from the fridge and warmed to room temperature before adding the sample. Tissue samples are placed into fixative **immediately** upon removal from the patient. Even a small gap between removal and fixation can cause ultrastructural changes. Samples should be fixed at room temperature for a minimum of 1 hour, before storage (if required – information below). Our preferred fixative is 3% glutaraldehyde in 0.1M sodium cacodylate buffer pH 7.4. We can supply this fixative in certain circumstances – please contact us to discuss.

Storage of fixed samples prior to transport to UHS

If storage is necessary, fixed tissue samples should be stored in fixative at 4°C (fridge temperature) after the minimum of 1 hour at room temperature. However, it is recommended that they are sent to us as soon as is feasible. Prolonged storage may affect ultrastructural detail.

Specimen Packaging, Transport and Acceptance Criteria

It is requested that samples are not sent without notifying the BIU team.

Please contact the BIU using the details below to obtain guidance on specimen packaging, transport, and acceptance criteria.

Contact Details

If you have any queries or problems, please contact us:

- biu@uhs.nhs.uk
- +442381 20 4807

Mortuary

The mortuary acts as both the Southampton Hospitals and Public mortuary providing a service to HM Coroner for Southampton and the New Forest. It has class leading specialist facilities for both Paediatric pathology and a specific specialist and Category 3 rated post mortem suite for all high risk/infectious other cases.

ALL deceased transferred to the Mortuary from wards MUST have identification bracelets attached to the wrist and ankle. The information on the ID bracelet should include: full name, hospital number and date of birth. The mortuary staff **MUST** be informed of any infection or radiation risk. All ICD/Implants must be recorded on the Notice of Death record sheet accompanying every patient. A deactivation/active record must also be recorded.

Referral centres who wish to facilitate the transfer of a deceased to this department must first contact the mortuary with full patient details and agree authorisation/pertinent/specific case criteria that may require additional Operations manager and pathologist consultation. This discussion will include the agreed admission and subsequent date/time collection details prior to the transfer being undertaken.

Post mortem Examinations

A post-mortem (also known as an autopsy) is a medical examination of the body after death. It helps to:

- Determine the cause of death
- Identify any medical conditions
- Understand how treatments may have affected the patient

There are two types of post-mortems:

1. Coroner's post-mortem
   Ordered by H.M. coroner when the cause of death is unclear or needs legal investigation.
   - **No consent** is needed from the next-of-kin.
   - If an organ needs to be kept for further examination, the coroner's officer will inform the family.

2. Hospital (consent) post-mortem
   Carried out with **written consent** from the next-of-kin or a significant person **not to ascertain cause of death**.
   - A consented post mortem is usually asked for by the patient's doctor, either to provide information about the illness or cause of death, or to advance

medical research. Hospital post mortems can only be carried out with consent from the next of kin.

- A hospital post mortem is requested because the clinical team and / or family have questions relating to the deceased's illness or death that they would like to be answered.
- A hospital post mortem may be undertaken to confirm (not establish) the cause of death, to identify other conditions present, to assess the extent of disease or to assess the effects of treatment.
- The clinical team must complete a medical certificate of cause of death before a hospital post mortem can take place and if they cannot do so the case must be referred to the coroner.

Consent process

The consent form has two parts:

- Permission for the post-mortem examination
- Permission to keep tissue or organs for diagnosis, teaching, or research

Always download the latest version of the form from **staffnet** - **post-mortem consent and human tissue disposal policy.**

Tissue disposal policy

- The consent form for a hospital post mortem is extensive but logical. You need to familiarise yourself with it before meeting with the next of kin
- Only staff who have completed the appropriate post-mortem consent training are authorised to take consent from families. If you are not trained, please complete the VLE course: adult post-mortem consent training.
- Alternatively, you may contact the bereavement and family support Team. A trained team member can support you during the consent process; however, they must not be asked to take consent independently. A member of the clinical team must always be present when consent is being taken.
- Responsible clinician should contact the pathologist who will perform the PM, before discussion with relatives so that accurate guidance can be given on which, if any, organs or tissues are likely to be taken. (this can be done by speaking with the mortuary team)
- Please do not make promises to relatives that a post mortem will be done the next day. Post mortems are performed in a timely fashion but there are multiple factors determining when they are done. Refer the relatives to the bereavement office 02381204587 or bereavementcare@uhs.nhs.uk for this information.

What the examination involves

A full post-mortem usually includes examining all major organs. This involves:

- An incision is made to access the chest and abdomen
- An incision at the back of the head to examine the brain

For hospital post-mortems, families can request a limited examination of specific areas (chest, abdominal or head only. However, this may reduce the amount of information available.

Small tissue samples (histology) are kept as part of the patient's medical record. If whole organs are retained, the family's wishes for their return or respectful disposal must be followed.

Important considerations

- Families must never be pressured into giving consent.
- A death should not be referred to the coroner simply because consent for a hospital post-mortem cannot be obtained.
- If the family wishes, the results of the post-mortem should be shared with them—ideally by the doctor who obtained consent or the consultant responsible for the patient's care.
- A follow-up appointment should be offered around **six to eight weeks** after the death.

For more details, please refer to the Trust's post mortem consent and human tissue disposal policy.

H.M. Coroner

- Coroners are appointed by local authority with consent of the Lord Chancellor and Lord Chief Justice and function in an independent judicial office.
- Coroners are usually have a background as solicitors or barristers for at least five years.
- Coroners provide judicially fair, impartial overview and scrutiny of all unnatural and violent death (including deaths of patients in hospital or care environments).

Circumstances in which a person's death should be reported to the coroner (notification of deaths regulations 2019)

A person's death should always be notified to the coroner where there is reasonable cause to suspect that the death was due to (i.e. more than minimally, negligibly, or trivially caused by or contributed to by) any of the following:

- poisoning including by an otherwise benign substance;
- exposure to, or contact with a toxic substance;
- use of a medicinal product, the use of a controlled drug or psychoactive substance;
- violence, trauma or injury;
- self-harm;
- neglect, including self-neglect.
- the person undergoing any treatment or procedure of a medical or similar nature;
- an injury or disease attributable to any employment held by the person during the person's lifetime.

In addition, a person's death should always be notified to the coroner where:

- the registered medical practitioner suspects that the person's death was unnatural, but does not fall within any of the above circumstances;
- the cause of death is unknown;

- the registered medical practitioner suspects that the person died while in custody or otherwise in state detention;
- there is no attending practitioner, or an attending practitioner is not available within a reasonable time to sign a MCCD in relation to the deceased person; or
- the identity of the deceased person is unknown.

The length of time that has passed since the person died does not impact on the duty to notify a coroner of the death once relevant circumstances come to light.
When the coroner starts an investigation, they will investigate the death independently, although both the clinical team responsible for care of the patient before death and the medical examiner may be asked to provide further information to support the investigation.
Some deaths must be automatically notified to the coroner – more information can be found Notification of Deaths Regulations 2019 guidance. After MES review, the ME may decide that a HMC referral is necessary. The patient's doctor will need to attend Victoria House to complete a referral online.

HM Coroner contact information:

For any other enquiries, please email hampshirecoroners@hants.gov.uk
For any press enquires please contact your nearest branch of the Coroner's Service.

- Winchester Court - email winchestercourtofficers@hants.gov.uk
- Portsmouth Court - email portsmouthcourtofficers@hants.gov.uk

Viewings

Arranging a viewing at the mortuary
If a patient is deceased, and their family may wish to view the patient. To support this, viewings can be arranged through the bereavement and family support team – ext. 4587.
Important:
Please ensure that no viewing arrangements are promised or confirmed with the family before consulting the mortuary team. This helps us coordinate appropriately and provide the best possible support to the family during a sensitive time.
Location of the viewing room - relatives must always be escorted to and from the viewing room. They should not be left to find their own way.
Outside core hours

Viewings outside of core hours may be arranged only in exceptional circumstances and only if the HM coroner is not involved in the case.
Whenever possible, families will receive more comprehensive support by arranging viewings during core hours through the bereavement and family support team.

To discuss the possibility of an out-of-hours viewing, please contact the clinical site manager on ext. 4046 or bleep 2238, and ask to speak with the on-call mortuary technician.