Guidelines for Users of Clinical Neuropathology Services

Version number 9.0

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Issued on 4th October 2022

Version Number	Change Details	Date

Contents

1. General Information

This user manual outlines the Clinical Neuropathology service provided by Synnovis LLP at the Denmark Hill site of the King's College Hospital NHS Foundation Trust.

Commitment to Quality

The Synnovis management system supports the business vision to be the leading Pathology provider of high quality, cost effective pathology services. The Department of Clinical Neuropathology is a UKAS accredited medical laboratory (number 8620). The Neuropathology test repertoire is stated on the Schedule of Accreditation which can be found at 8620 Medical Single (ukas.com).

The Department completes an Annual Management Review (AMR) to ensure quality objectives are monitored and changes or new systems are implemented effectively. Satisfaction of service users is seen as a key indicator of success in improvement of services. Key performance and quality indicators are used to enhance operational performance and remove variation from laboratory processes. Internal quality control (IQC) and assurance with External Quality Assurance (EQA) is used as part of the overall assurance mechanism along with clinical and internal audit to monitor adequacy of operating procedures and effectiveness of the quality systems.

Data Protection

The laboratory complies with the requirements of the General Data Protection Regulation (GDPR) 2018, the Data Protection Act 1998, the Caldicott principles on safeguarding patient confidentiality and patient information, and with guidance from the Royal College of Pathologists. All patient identifiable information is regarded as confidential and is passed on only for official purposes e.g. to professionals with responsibility for patient care or public health. Confidential data is held only as long as necessary for operational purposes, and is stored securely.

2. Location of Department and Opening Hours

The Department of Clinical Neuropathology is based on the 1st floor of the Academic Neuroscience Building, Denmark Hill site and is under the control of Synnovis LLP. The 'Synnovis' brand is a relationship between the NHS, SYNLAB and pathology services in South East London.

The department is staffed between the hours of 8.30am and 5.00pm Monday to Friday. The Clinical Neuropathology satellite laboratory on the first floor of the Ruskin Wing is used to handle unfixed specimens and is staffed on an intermittent basis. The laboratory can only be accessed via security swipe cards but during core hours visitors to the department can gain access by pressing the buzzer and reporting directly to laboratory staff.

Information for Couriers – Map of KCH Denmark Hill Campus

Department of Clinical Neuropathology
1st Floor, Academic Neurosciences Building,
King's College Hospital Foundation NHS Trust,
Denmark Hill,
London,
SE5 9RS

The Department is situated within the Academic Neurosciences Centre, which is the two storey yellow brick building on stilts with a car park beneath on the west side of Denmark Hill. It is the closest point of the KCH campus to Ruskin Park and Denmark Hill train station.

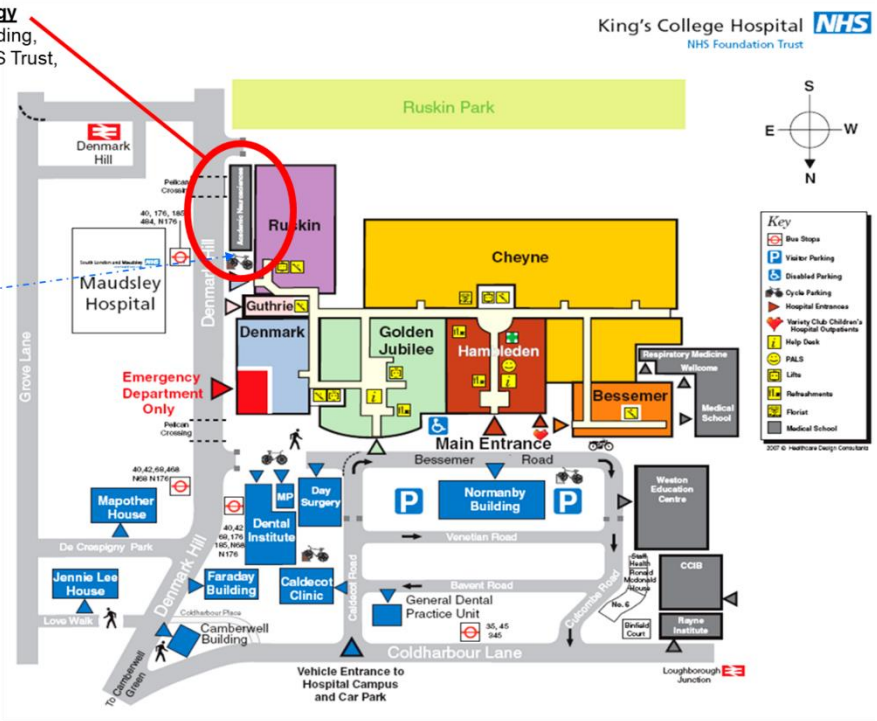
Access to the building is via a buzzer system which is outside the entrance to Ruskin Wing.

Press the button labelled Clinical Neuropathology and wait to be buzzed in.

Go up one flight of stairs, turn right and follow the signs for Clinical Neuropathology.

Use the telephone at the entrance to the department to call the laboratory (x31957) and ask be let in.

In case of difficulties call 0203 299 1957 for assistance.



Postal address

Department of Clinical Neuropathology

1st Floor, Academic Neurosciences Building,

King's College Hospital Foundation NHS Trust,

Denmark Hill,

London,

SE5 9RS

Main laboratory telephone number: 020 3299 1957

3. Key Personnel and Contact Details

Hospital switchboard: 020 3299 9000

Name	Designation	Telephone number
Prof Safa Al-Sarraj	Lab Director and Consultant Neuropathologist	020 3299 1958
Dr Andrew King	Consultant Neuropathologist	020 3299 1953
Dr Istvan Bodi	Consultant Neuropathologist	020 3299 1954

Dr Zita Reitz	Clinical Fellow	
Mary Davitt	Office Manager	020 3299 1955
Michaela Small	Secretary	020 3299 1950
Dr Peter Bannister	Laboratory Manager	020 3299 1951
Ashley Kilner	Quality Manager	020 3299 1951
Nelly Ritcheva	Electron Microscopy and Neuromuscular Lead	020 3299 4556

4. Out of Hours Service

- The Consultant Neuropathologists operate a 24-hour cover 365 days a year on a rotational basis. The on-duty Neuropathologist carries an air-call pager out of hours and can be contacted by asking the KCH switchboard to bleep them.

5. Intra-operative Diagnostic Service

One of two procedures will be carried out to provide an intra-operative diagnosis: a smear or a frozen section.

A smear is the procedure of choice, and is prepared by crushing and smearing the soft tissue from brain lesions between two glass slides, followed by rapid staining with toluidine blue. The method is quick; about 5 minutes to prepare a stained slide. The diagnosis, which can be reached in 90-95% of cases, depends on the pattern of smearing and the morphology of the cells. The smear is the only procedure available for the out-of-hours service as the Consultant Neuropathologist can carry it out.

If a diagnosis cannot be made from the smear, or the tissue is too tough to crush, a frozen section will be prepared (except out-of-hours service). A piece of tissue is frozen; thin sections are cut in a cryostat and then stained with haematoxylin and eosin. This takes about 20 minutes for a Biomedical Scientist to prepare. The diagnosis depends on the pattern of the tissue and the morphology of the cells and is more definitive than a smear preparation.

- **24-hours**' notice should be given by phoning the laboratory (x31957) if intra-operative diagnosis is required for any elective surgery. A completed EPR "frozen section" request form (see section 10 below) should be generated. **All high-risk** cases (including known and suspected cases of Hepatitis, HIV, TB, and Prion disease) **must** be disclosed on the form, as this will affect how the specimen is handled.
- In case of daytime emergency operations, the booking and telephone call has to be made as soon as possible when the operation is confirmed.
- **The urgent intra-operative diagnosis will not be offered if this has not been discussed, in advance, with the Consultant Neuropathologist on duty.**
- In all out-of-hours emergencies, the request for an intra-operative diagnosis has to be made by Consultant Neurosurgeon to Consultant Neuropathologist to justify the reason. (*Please use mobile phones or air call via switchboard).*
- If unable to use the Sunrise system to book an intra-operative diagnosis, please phone the Neuropathology Laboratory on x31957

- If no intra-operative diagnosis is required, please put the specimen in formalin and leave it at Neurotheatres Reception (remembering to fill out the specimen book there). The sample will be collected by our staff (see section 4 below).
- If you want to discuss neuropathology reports, please call the Consultant Neuropathologist on:
    - Professor Safa Al-Sarraj x31958 or *(air-call by name via KCH switchboard)*
    - Dr Istvan Bodi x31954 o*r (air-call by name via KCH switchboard)*
    - Dr Andrew King x3195 o*r (air-call by name via KCH switchboard0*
    - Dr Zita Reisz x31952 O*r (air-call by name via KCH switchboard)*

Please use the air-call only in emergencies

6. General Requirements for Sending Biopsy Specimens

All samples must be accompanied by a clearly completed request form, <u>including clinical information</u>. Both specimen label and request form should be generated using the Sunrise **EPR system** (see section 10 below). Failure to use the Sunrise system may result in considerable delays.

If the EPR system cannot be used and request forms are handwritten, please ensure that they are legible and include the following information:

- **Patient name (surname and forename)**
- **Date of Birth**
- **Hospital number or NHS number (if known)**
- **Specimen type** – e.g. specify anatomical site and type of biopsy
- **Date and time the sample was collected** (this is essential as processing delayed specimens can yield misleading results in some cases)
- **Name and email address of the patient's Consultant**
- **All relevant clinical details/symptoms**
- **Any current medication**
- **Risk status if applicable** - if the clinical presentation suggests that a specimen may pose a potential risk to laboratory staff then this must be stated

The following comments relate to all specimens for Clinical Neuropathology.

a. The Clinical Neuropathology satellite laboratory on the first floor of the Ruskin Wing is staffed on an intermittent basis therefore; **<u>do not</u>** try to deliver any specimens without prior arrangement.

b. Specimens for Neuropathology can be left at Neurosurgery theatre reception (ground-floor Cheyne Wing). The specimen ledger **<u>must</u>** be filled in. Specimens can be left out of hours. If the theatres are locked the Theatre Sister can be bleeped on 297. A member of the Clinical Neuropathology laboratory will collect, and sign for all available specimens from Neurosurgery theatre reception each day by 4pm. To arrange for urgent collection of specimens, which require immediate attention (e.g. unfixed specimens), bleep 722 or phone x31957 (see also below for CSFs, muscle and nerve biopsies).

- **All** specimens **must** be sent in a specimen pot.
- **All** specimen pots **must** be clearly and fully labelled, and accompanied by a request form
- **All** pots **must** be sent in a self-sealing clear plastic bag containing a separate compartment for the completed form.
- Specimens should be transported through the hospital in a red specimen transport box.
- **All high-risk** specimens and accompanying forms (including known and suspected cases of Hepatitis, HIV, TB, and Prion disease) **must** be clearly labelled. This is Trust infection control policy and failure to do so will result in a Trust adverse incident being raised. It is expected that the Neurosurgeon will contact the on-duty Neuropathologist first in cases of suspected Prion disease.
- **Do not** place large specimens into small pots. This causes several problems including poor preservation, distortion and damage to the tissue when trying to remove it from the pot. If the specimen does not go into the pot under gravitational force alone, the pot is too small.
- **Do not contaminate** the outside of the specimen pot.

- When adding fixative (10% neutral buffered formalin) fill pots to the brim checking that all the tissue is immersed and there are no pieces remaining uncovered on the inside of the lid or high up in the pot. Invert the pot gently to check. **Fixative must not be added to cerebrospinal fluids (CSFs), muscle and nerve biopsies. Instructions for these samples are described separately below.**

7. Cerebrospinal Fluids for Cytology

CSF specimens for cytology deteriorate quickly and therefore, where possible, they should be dealt with by the laboratory soon after they are taken. If there is going to be a delay they should be stored in a fridge. Bleep 722 or phone x31957 when the specimen has been left at Neurosurgery theatre reception (ground-floor Cheyne Wing). **Specimens will not be collected after 5pm**. Specimens can be left in the fridge in Neurosurgery theatre reception out of hours but the Neuropathology laboratory must be contacted the following morning to let them know it is there.

2-5ml of CSF is a sufficient volume to allow laboratory tests to be performed.

PLEASE DO NOT leave CSF (or any other specimens for neuropathology) in ward boxes. These will be taken by porters to the central Specimen Reception and this may lead to significant delays in processing that can affect the assays requested.

8. Muscle and Nerve Biopsies

Outside the “Neuromuscular clinic” on Wednesday afternoons, biopsies need to be **booked at least 24 hours in advance** (bleep 722 or phone x31957) so that arrangements can be made for a Biomedical Scientist to be available to deal with the fresh specimen when it is taken. If specimens are not booked in advance there may not be a member of the laboratory staff available. In such cases both the specimen and a number of investigations will be compromised.

Unless specifically indicated/contra-indicated by the patient's condition, the muscle of choice to biopsy is the quadriceps or biceps and the nerve of choice is the sural. The volume of tissue required is approximately 1 cubic cm for muscle and 1-3cm in length for nerve. **Diathermy or cautery must not be used** on the tissue submitted for analysis and the sample must not be clamped or tied to a stick. Samples must be sent in a clean, dry pot, with no gauze or fixative.

Due to the amount of work that needs to be carried out on receipt **specimens will not be accepted after 4.00pm.**

9. Skin Biopsies for Intra-epidermal Nerve Fibre Density Analysis

Skin biopsies should be **booked at least 24 hours in advance** (call x31957/1) to ensure availability of laboratory staff and to allow time for preparation of special fixative components. The fixative must be collected from the laboratory immediately before the biopsy is taken. For external users, please contact the laboratory a week before the procedure so that the fixative can be posted in time for the procedure.

The fixative is provided as 3 components (labelled A, B and C). Pots A and B contain a small volume of colourless liquid and pot C contains a tiny amount of white powder. To mix the fixative ready for use pour the contents of pots A and B in pot C, secure the lid and shake vigorously for 30 seconds to dissolve the powder. The prepared fixative should be used within 2 hours. Unless specifically indicated/contra-indicated by the patient's condition a 3mm diameter punch biopsy of the skin should be obtained from the leg (10cm above the external malleolus). Skin biopsies submerged in the special fixative must then be returned to the laboratory for processing. For external users, please return the fixative containing the biopsies via courier to avoid a delay in the sample arriving to the laboratory. Biopsies may be received by the laboratory on any working day. If for any reason the laboratory is closed, store the biopsy (immersed in the fixative) in a refrigerator at 4°C and return it to the laboratory the next working day.

Warm or extended periods of fixation will render the tissue unsuitable for IENFD analysis.

10. Autopsies

Hospital post-mortems will be performed when required. Please call the departmental office on 0203 299 1950/5 and a pathologist will be assigned to the case. Reports will comprise 3 parts; autopsy report, macroscopic description report and full microscopy report if applicable. The department expects that appropriate consent be obtained for retention of any tissues (including the brain) for research, teaching and training, in addition to the diagnosis. It is at the pathologist's discretion whether he/she proceeds with the autopsy taking into account the level of consent available. Reports will be uploaded to Sunrise EPR when completed.

11. Turn-round times for main reports and additional tests

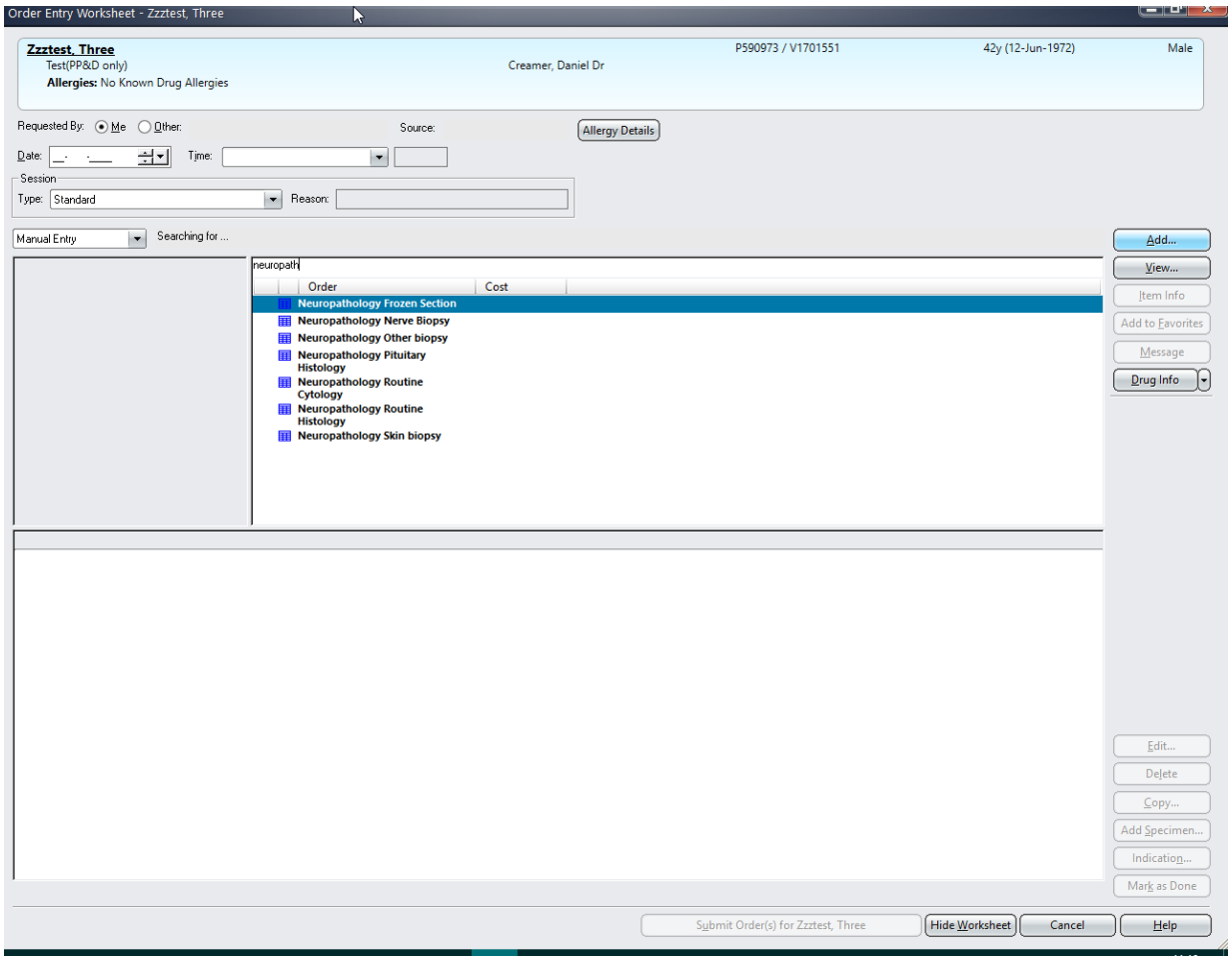
The times given below are for an “average” case. Cases that are difficult to diagnose will inevitably take longer as more tests will be required to be carried out.

Specimen type	Number of working days	Target of % within turn-round time
CSF cytology	2	95
Brain biopsies (surgical)	5 (2 if no special stains required)	95
Pituitary biopsies	4	95
Epilepsy Surgery	15	95
Muscle biopsies	10 (main report)	95
Nerve biopsies	5 (paraffin) 20 (semi-thin resin)	95 90
Skin biopsies (IENFD test)	20 (Biopsies are batch processed in groups of 5-6)	90
Bone biopsies	Depends on how long it takes to decalcify specimen (usually within 5 once decalcified).	90
Other biopsies	5 (2 if no special stains required)	80
1p19q deletion, C-Myc amplification, EGFR amplification, BRAF Fusion, MGMT methylation status, BRAF mutation, rare IDH mutations	10	90
Electron microscopy	30 (from when request issued)	90
Autopsy general report	5	90
Autopsy macro report	30	90
Autopsy histology (Micro)	60	90

12. Generating Sunrise EPR Requests

To place an order for Neuropathology requests on Sunrise please follow the following steps.

In the order entry screen type “neuropathology” in the search box.



Choose the relevant test and complete **all fields**. The request form and specimen labels are printed out. Form accompanies labelled specimen to the laboratory.

Frozen section requests are printed in the neuropathology laboratory and emailed to the Laboratory and Quality Managers. This is to make sure that staff is aware of the booking.

If you have any queries about sending specimens please do not hesitate to contact the Clinical Neuropathology laboratory on x31957 or bleep no. 722.