Division of Laboratory Medicine

Manchester Cytology Centre

Synovial Fluid Analysis Service

User Manual

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1. About us (7.2.2a)

The Synovial fluid cytology service of Manchester University NHS Foundation Trust (MFT) is located at the Manchester Cytology Centre, 1st floor of Clinical Sciences building 2, Oxford road campus. It is the largest unit of its kind in the country providing cervical screening using the ThinPrep Based Cytology System and a wide variety of Diagnostic Cytopathology services.

The osteoarticular pathology service by synovial fluid analysis began in April 2011. Synovial fluid analysis is of greatest value in distinguishing inflammatory from non inflammatory arthropathies and in defining specific disorders within these two groups. It is also important in the diagnosis of early inflammatory disease where it might be possible on the basis of cytology to identify a specific arthropathy before the clinical syndrome develops. In these cases accurate early diagnosis often allows the institution of specific therapy before irreversible joint damage has occurred. Finally, it permits the very rapid diagnosis of joint disease, particularly in disorders such as septic arthritis, where the prognosis is inversely related to delay in diagnosis.

The department has ISO 15189:2022 accreditation and is an approved IBMS training centre. We are closely associated with the North of England Pathology and Screening Education Centre (NEPSEC) and provide training to medics and scientific staff. We are fully committed to maintaining this accreditation by an established quality management system and standards determined by the Royal College of Pathologists together with scheduled clinical and quality audits and national guidelines.

1.1 Opening hours (7.2.2a)

The department is open from 08:00hrs – 17:00 hrs, Monday to Friday (except bank holidays) Synovial fluid samples should be received in the department by 13:30hrs in order to be processed the same day.

2. Find or contact us at MFT (7.2.2a)

The Manchester Cytology Centre is located on the first floor of Clinical Sciences Building 2. All visitors must access the department via the reception area of Clinical Sciences Building 1.

Please contact us if you have any complaints or service improvement suggestions.

If you wish to make a formal or informal complaint please contact the Patient Advice and Liaison Service (PALS) pals@mft.nhs.uk 0161 276 8686

Many verbal complaints will be easily and quickly resolved by the clinical lead, laboratory Manager or a cyto/histopathologist and will be recorded by the department.

It is the discretion of the Laboratory Manager to forward any complaints onto the Directorate of Laboratory Medicine team for recording if appropriate.

Address**:**

Manchester Cytology Centre
1st Floor Clinical Science Building 2
Manchester Royal Infirmary
Oxford Road
Manchester
M13 9WL

Email: mft.ngcytology@nhs.net

Telephone Enquiries

	Telephone
General	**0161 276 5116/6727**
Synovial fluid cytology results	**0161 276 5115/5116/6727**
Advice on Synovial fluid sample collection. Comments, complaints or suggestions.	**0161 276 5110**
Request for sample containers or forms	**0161 276 5110**

2.1 Key Contacts at MFT

Name	Position	Telephone	E-mail
Dr Mohsin Mazhari	Head of Synovial fluid analysis service	0161 276 6444	mohsin.mazhari@mft.nhs.uk
Dr Leena Joseph	Consultant Histopathologist	0161 291 4808	leena.joseph@mft.nhs.uk
Dr Asma Haider	Consultant Histopathologist	0161 276 8816	asma.haider@mft.nhs.uk
Christopher Evans	Consultant Biomedical Scientist	0161 701 1443	christopher.evans2@mft.nhs.uk
Dipak Ruda	Biomedical Scientist Team leader	0161 276 5110	dipak.ruda@mft.nhs.uk
Rosebina Zafar	Diagnostic Cytopathology Cytology Lead Biomedical Scientist	0161 276 5110	rosebina.zafar@mft.nhs.uk
Jacquelyn Medlock	Cytology Manager	0161 276 5120	jacquelyn.medlock@mft.nhs.uk
David Slater	Cytology Quality Lead	0161 276 5110	david.slater@mft.nhs.uk

3 Quality (5.4.2, 5.5)

Cellular Pathology (Histology and Cytology) is fully accredited by UKAS in conformance with ISO 15189:2022. Our UKAS Medical Laboratory Reference Number is 8648. The department participates in regular extensive assessments to maintain its accreditation status.

The department is committed to delivering a quality service to our users and operates within a framework of continual improvement. A quality management system is utilised to ensure all documents, processes, quality records and clinical material are controlled to DLM (Division of Laboratory Medicine) policy. Processes and systems are regularly audited to identify non-conformities and quality improvements.

3.1 External Quality Assurance (7.3.7.3)

Synovial Fluid service participates in the UKNEQAS for Cellular Pathology Technique (CPT) Evaluation Scheme. UKNEQAS for CPT is an established international scheme with a first-class reputation and participant base that provides external quality assurance to both public and private

institutions within the UK and overseas. Additionally, the synovial fluid service participates in an external quality assessment scheme LabQuality, for the evaluation of participants performance.

3.2 Data Protection (7.6)

The departments comply with trust, DLM and departmental policies relating to the handling, use and protection of personal information (DLM-QUAL-PRO-022 Management of Data and Information).

- We only ask for information that we need to allow interpretation of results
- We protect the information and ensure only those staff who need to see the information can access it
- We share the information only when we need to for patient care, for example sending the information to another laboratory for testing
- We don't store information for any longer than is absolutely necessary

3.3 Measurement of uncertainty (7.3.4)

In clinical laboratory testing there are potential uncertainties that can affect test results, such as poor specimen collection or transport, patient related factors or other interfering factors. The laboratory examination process itself is subject to some degree of variability and our department regularly monitors this by the use of internal quality control and participation in external quality assurance schemes.

In accordance with the RCPath guidance, an assessment of the uncertainty of measurement will be carried out for any measurement that is included in the diagnostic report if it is deemed to have actual or potential "direct clinical impact."

Where weights and measurements are part of an overall description and do not impart prognostic or predictive value, an assessment will not be carried out.

The laboratory has undertaken a specimen pathway risk assessment to ensure all factors that may contribute to measurement uncertainty that cannot be statistically defined are captured and controlled as far as possible.

Information for users relating to measurement uncertainty is available on request.

3.4 Patient Consent (7.2.4.3)

It is the responsibility of the requesting clinician to ensure that any objections or restrictions expressed by a patient to the use of their samples are clearly recorded on the request card.

For samples submitted from external locations, it is the responsibility of the referring Trust to ensure consent for testing is in place, please be aware that evidence of consent may be required prior to sample testing.

4 Requesting of Investigations (7.2.4.4)

The Division of Laboratory Medicine (DLM) guidelines for specimen acceptance must be followed to ensure that all samples are correctly and unambiguously identified. The policy provides an overarching process to specimen rejection to help balance the requirement to process against the risk to patient safety. Clinical governance issues may arise from errors in specimen identification and/or insufficient clinical information being given with a specimen. To ensure that specimens are linked to the correct patient, adequate identifiers are essential.

Labelling multiple samples from the same patient

If there are multiple samples from the same patient from different sample sites or multiple samples from the same site:

1. Ensure each sample is collected in the appropriate sample collection pot (see section 7.2)
2. Ensure each pot is fully labelled with all the appropriate patient demographic information (see section 4.1) – for HIVE orders each pot should have a unique sample label generated
3. Ensure each pot is labelled with the specific sample source location i.e. left knee
4. If there is more than 1 aspiration for a specific sample location (i.e. 2 aspirations of left knee) these should be collected into the same sample pot where possible and labelled with sample source. Alternatively, you may use another pot if the volume of the sample exceeds the pot size. Please indicate the number of aspirations for that site on either the sample pot or provided with the request.

All urgent and specimens on a cancer tracking pathway (HSC205) should be clearly labelled as such. The date and time the specimen was taken is important information that should be included on all requests

4.1 Specimen acceptance policy

Each specimen must be accompanied by a completed and matching sample request form. Please ensure all fields of the request form are complete. See page 15 on how to complete the form. A blank copy of same is available for download on page 16. Alternatively, we can supply forms on request.

Please note samples received into this department will only be used for cytology. If additional tests are requested to be done by other departments, each department must be sent a separate sample.

For test requests ordered on the Hive Electronic Patient Record (EPR) system an order requisition printout must be submitted with the request.

For non-Hive requests or paper requests raised during Hive downtime see sample acceptance criteria below for more information.

The following mandatory information must be provided for us to accept the specimen:

All specimen containers must be clearly labelled with:

1. Patient's full name
2. Date of Birth
3. NHS &/or Hospital number
4. Aspiration site

Essential Patient Identifiers:

- **Surname**
- **Forename**
- **Unique identification number** – Medical Record Number (MRN), NHS or external hospital number for external cases
- **Date of birth**
- **Address** – for GP or external locations

Essential clinical information – sample site MUST be listed on the sample pot/request form for the sample to be accepted

Essential Sender Details:

- **Ward/department** – required for return of reports
- **Consultant or GP** – required for return of reports and contact in case of any errors/discrepancies
- **Contact number/bleep** – if urgent preliminary report required

It is recognised that samples are sometimes not repeatable therefore the department has protocols in place to deal with specimens and accompanied request forms that do not meet the specimen acceptance criteria. A final report will not be issued until such details have been corrected.

As far as is reasonably practicable, when the sample is being processed on the same hospital site as it was taken, the requesting clinician will be required to attend the Laboratory to make any necessary amendments or verify the patient details / source of the sample.

For MFT cases, where it is not possible for the requesting clinician to attend, they, and / or the person raising the order will be contacted by electronic communication (email / HIVE chat as appropriate) and an audit trail will be established to verify the patient details / source of the sample.

For samples from General Practitioners or external clinics we will accept corrections to patient detail discrepancies via email.

All specimen and/or request form amendments will need to have a specimen amendment form completed and / or a printout of the correction email.

If the request form requires edit, either a new form is submitted, or the request form can be edited to represent the amendment in the margin on the form with the initials and date of the individual who collated the information. If amendments are not addressed within seven calendar days, then an incident will be raised in Ulysses.

Any high-risk specimens should be highlighted on the specimen request form and for MFT orders, on the HIVE request.

4.2 Request Cards (7.2.2)

All paper request cards should be completed in full (see above), and all information provided should be clearly legible. Any missing information or errors will result in a delay to specimen processing and reporting.

Correct patient and specimen information is vital for us to provide a quality service to our users. Any specimens deemed to be high risk or potentially high risk should be clearly labelled as such to protect the health and safety of all staff.

As we provide our service to a range of service users, please also state the type of unique patient identification number given, e.g. NHS, district, MRN. Please also indicate whether the patient is an NHS, private or waiting list initiative patient.

4.3 HIVE Requests (7.2.2)

Unlike some of the other pathology disciplines, Cellular Pathology (Cytology) still require a request card for all specimens requested on HIVE.

For test requests ordered on the Hive Electronic Patient Record (EPR) system an order requisition printout must be submitted with the request

HIVE generates specimen labels for both the requisition printout and each sample pot created as part of the order entry. Please ensure the correct label is attached to the correct container. HIVE labels must be attached to the specimen container and not to the lid of the container.

4.4 Package and transport of samples

Samples taken at central site must be sent with the porter and not via the pneumatic tube.

Synovial fluid samples requiring transport on the public road must be packaged and transported in compliance with “The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (ADR Regulations) 2011”. Specimens must be packaged according to P650 instructions with a UN3373 diamond point label - Biological Substance, Category B.

Please note instructions P650 requires three layers of packaging:

- Primary container (e.g. universal tube, vial)
- Secondary container (e.g. specimen bag)
- Outer packaging (e.g. rigid transport box).

The primary sample must be individually bagged in a secondary bag and sealed. If the sample is liquid, enough absorbent material must be added to the secondary bag to absorb a potential spillage of the sample. The request form must be placed in the specimen bag’s separate pouch.
Specimens must then be placed in a rigid box and closed. The box must comply with Transport Regulations. The outside must be clearly labelled Biological Substance Category B, with a UN3373 diamond label. The laboratory address should be clearly written.

- If a sample is sent by post via Royal Mail, please adhere to the packaging guidance available on the Royal Mail website. It is the responsibility of the sender to ensure that specimens are appropriately labelled and packaged and:

- Are sent by first class post or Special Delivery and to inland addresses only.

- The packet is marked with the sender's name, telephone number and address.

Specimens must be delivered to the laboratory within 24 hours. If there is unavoidable delay in sending the specimen, please keep it refrigerated at 4°C

If possible, send specimens on the **first 4 working days of the week** as the laboratory is not open at weekends.

All samples must arrive before 13:30hrs to be processed on the same day.

4.5 Specimen Tracking (7.2.2)

Many of our service users have systems in place to track specimens. If specimen acceptance criteria are applied at the time of tracked receipt, the specimen can be returned to the sender quickly should any discrepancy be identified.

Appropriate action in the event of a specimen acceptance failure involving an Urgent / HSC 205 sample is decided at the discretion of the reporting pathologist. The decision to accept and process pending confirmation may be taken based on a dynamic risk assessment to determine potential harm to the patient.

If a specimen has been requested using HIVE, the sender can use HIVE to check whether the specimen has been received.

5 Specimen Requirements (7.2.4)

All specimens should be sent to the laboratory in an appropriately labelled paediatric heparin orange top pot. If a paediatric heparin pot is not available, a sterile container may be used. It is unsafe practice to label specimen pots in advance of a procedure.

5.1 High Risk Specimens (7.2.2)

All specimens from patients who are identified as (or are likely to be) in the high-risk category must be clearly labelled to ensure the health and safety of all staff. The following are common hazard group 3 pathogens considered high risk (this list is not exhaustive): HIV, AIDS, TB, Hepatitis B and Hepatitis C.

6 Communication of Results

6.1 Reports (7.2.2, 7.4.1)

All reports issued by the department are available on the relevant Trusts' electronic systems. This will be EPIC HIVE Electronic Patient Record at Manchester University NHS Foundation Trust sites and Lorenzo within Tameside. For primary care, paper reports are distributed to the GP practice systems.

Paper reports are still sent to all external.

Users are requested to check if final reports are available on the patient chart in HIVE before making enquiries. Please note that clerical staff will not give report details over the telephone.

6.2 Turn around Time (7.2.2)

The Synovial Fluid Cytology service aims to report all specimens in accordance with NHSE Faster Diagnosis Standard (FDS) by March 2025
https://www.england.nhs.uk/wp-content/uploads/2023/08/PRN00654-national-cancer-waiting-times-monitoring-dataset-guidance-v12.pdf

Existing turnaround times guided by the Royal College of Pathologists are:

80% of cases are to be reported within seven calendar days of sample being taken whilst 90% are to be reported within ten calendar days – www.rcpath.org. TAT relates to the final local report and excludes cases sent for external opinion and those that require molecular biology analysis. The department is required to publish monthly audit reports and this information is available on request.

However, sometimes a sample may be deemed urgent by the requesting clinician in these instances;

- Urgent specimens will be processed on the same day if received by **13:30 hrs**. Please provide a contact number or bleep and name.

- We will aim to give a same day report, this may only be a provisional report pending further ancillary tests.

- **It is recommended that the requesting clinician discuss such specimens with the histo/cytopathologist on 0161 276 5115/5116. In all cases, the clinician**

should telephone the laboratory in advance and provide a contact name and phone or bleep number.

Routine specimens will be processed on the same day provided that the sample is received by **13:30 hrs**. This may vary depending on clinical information or if ancillary tests are required e.g special stains.

- Synovial fluid cytology reports are printed and sent out daily, addressed to the consultant or GP who requested the test. Where an email address has been provided, reports will be emailed.

- Additionally, the user is informed of any sepsis reports for MFT patients only on HIVE secure chat.

- To discuss the cytology report with the Consultant Histo/Cytopathologist, contact the department between 08:00 hrs and 17:00 hrs on 0161 276 5115/5116

7.0 Synovial Fluid Samples (7.2.2)

We provide a comprehensive Synovial fluid analysis through which inflammatory arthropathies can be distinguished from non inflammatory arthropathies and in defining specific disorders within these two groups.

Synovial fluid analysis is also important in the diagnosis of early inflammatory disease where it might be possible to identify a specific arthropathy before the clinical syndrome develops.

Finally, it permits the very rapid diagnosis of joint disease, particularly in disorders such as septic arthritis.

Synovial fluid analysis consists of the following :

- White blood cell count
- Crystal identification
- Particle identification
- Differential white blood cell count
- Gram staining for the presence of Gram +ve/-ve bacteria.

7.1 Factors Affecting Performance (7.2.2)

At least 300µl of sample is required for full analysis. Volumes less than this will have limited analysis. It is important to send the samples to the department as soon as possible, samples

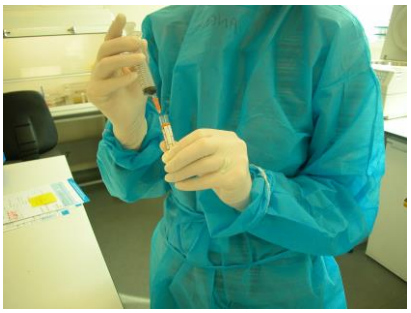
over 2 days old start to degenerate making analysis difficult and increasing the likelihood of an inadequate report being issued.

7.2 Synovial Fluid sample collection (7.2.2, 7.2.7)

Paediatric Lithium Heparin bottle and Synovial request forms can be provided by the laboratory for sample collection upon request. **Please contact us on telephone numbers 0161 276 5115/5116 for Lithium Heparin bottles and/or request forms.**

For full analysis, at least 300 µl of Synovial fluid is required

Step 1: Once the identity of the patient has been confirmed, collect sample from site and expel into a Paediatric Lithium Heparin bottle.



Step 2: Mix thoroughly by gentle inversions

Step 3: Label container according to specimen acceptance policy (section 4) and dispose of materials used in collection according to your local policy

If sample is required for tests using other departments such as microbiology, extra samples need to be collected in the appropriate containers as the cytology sample will not be split.

8.0 Completion of the Synovial fluid cytology request: External Users

To prevent delay to processing/issuing of reports, please ensure all fields of the form are filled in.

Supply the name and address of your hospital/surgery

Insert the name of the consultant who requested the sample and the department the report is to be sent to

Insert bleep/ phone/fax number here for the requesting consultant

Insert the patients details here ensuring that these match the details given on the specimen tube. Label specimen with patient name,DOB,NHS number and site of aspiration

Indicate the specimen type. If the sample is from a prosthetic joint specify the type

Indicate the site of the specimen and the side of the body

Indicate the date and time the aspirate was taken

Q-pulse identifier: CYSPFRM12 (old Q-pulse identifier CYT FORM 096), Version 007,
Date of issue: 12.12.2019 Free to Print

Synovial Fluid Cytology Request Form- Manchester Cytology Centre

PLEASE INFORM THE LAB OF SPECIMENS REQUIRING URGENT REPORTS.
Samples must be sent in provided Paediatric Lithium Heparin bottles on the same day aspirated.

Name and address of sending Hospital/GP:

Consultant to whom the report is to be sent (please print):

Consultant's department where report is to be sent:

Bleep/contact/fax number (for requesting consultant):

PATIENT'S DETAILS: (AFFIX STICKER HERE)

Surname	
Forename	
Address	
Sex	DOB / Private /NHS
Hospital/NHS number	

CLINICAL INFORMATION

Clinical History .....
.....
.....
.....

High Risk Yes ☐ No ☐

SPECIMEN DETAILS:

SPECIMEN TYPE – PLEASE TICK	
	SYNOVIAL FLUID – NATIVE JOINT
	SYNOVIAL FLUID – PROSTHETIC JOINT (specify type if known)
	BURSAL FLUID
	SUSPECTED CRYSTAL DEPOSIT
	SUSPECTED HYDROXYAPATITE NODULE

Site of specimen	
Side of body	Left/Right

Date taken	
Time taken	

PLEASE NOTE
Specimen types other than those listed above should normally be sent to your hospital's cytology or histology department using their request form. If in doubt please contact our department during working hours on the number below.

Same day processing will be done if specimen is received before 13:30 Hrs

Note: The laboratory is closed at weekends and bank holidays and does not operate an out of hours service

Specimens must be sent to:
Manchester Cytology Centre
Clinical Sciences Building 2
Manchester Royal Infirmary
Oxford Road
Manchester. M13 9WL
Tel: 0161 276 5116/6727or 65103 for clinical queries
Fax: 0161 276 5113

Aspirating Clinician (PLEASE PRINT) .....Contact no./bleep.....

Signature.....

N.B. Incomplete forms will result in reporting delay

Visit us via www.mft.nhs.uk

Insert appropriate clinical history here

Indicate if high risk

To be filled in by the aspirating clinician ensuring contact number/bleep is given

8.1 Download a Synovial fluid cytology request form: External Users

Q-pulse identifier: CYSPFRM12 (old Q-pulse identifier CYT FORM 096), Version 007,
Date of issue: 12.12.2019
Free to Print

Synovial Fluid Cytology Request Form- Manchester Cytology Centre

PLEASE INFORM THE LAB OF SPECIMENS REQUIRING URGENT REPORTS.
Samples must be sent in provided Paediatric Lithium Heparin bottles on the same day aspirated.

Name and address of sending Hospital/GP:

Consultant to whom the report is to be sent (please print):

Consultant's department where report is to be sent:

Bleep/contact/fax number (for requesting consultant):

PATIENT'S DETAILS: (AFFIX STICKER HERE)

Surname	
Forename	
Address	

Sex		**DOB**		**Private /NHS**	
Hospital/NHS number					

CLINICAL INFORMATION

Clinical History .....
.....
.....
.....

High Risk **Yes** ☐ **No** ☐

SPECIMEN DETAILS:

SPECIMEN TYPE – PLEASE TICK	
	SYNOVIAL FLUID – NATIVE JOINT
	SYNOVIAL FLUID – PROSTHETIC JOINT (specify type if known)
	BURSAL FLUID
	SUSPECTED CRYSTAL DEPOSIT
	SUSPECTED HYDROXYAPATITE NODULE

Site of specimen	
Side of body	Left/Right

Date taken	
Time taken	

PLEASE NOTE

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Fax: 0161 276 5113

Aspirating Clinician (PLEASE PRINT) .....**Contact no./bleep**.....

Signature.....

N.B. Incomplete forms will result in reporting delay

Visit us via www.mft.nhs.uk