NHS Royal Papworth Hospital NHS Foundation Trust

Mesobank UK Mesothelioma Biobank

Human Tissue Quality Manual

Royal Papworth Hospital's Research Tissue Banks

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Revision History Log

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1.0	n/a	Sallyanne Meakins	New document effective from 04/06/2025
2.0	13/11/2025	Sallyanne Meakins	Retention period for HTA-related records added. References added to new HTA related Adverse Events and Near Misses SOP 133. Appendix 1,3 and 4 replaced with Core SOP Matrix.

Contents

1. Introduction

Royal Papworth Hospital (RPH) is the UK's leading cardiothoracic centre, internationally renowned for its groundbreaking research into heart and lung disease. The collection and use of human tissue play a vital role in many of the hospital's research initiatives. To support this work, RPH operates two Research Tissue Banks (RTBs), dedicated to the effective collection, storage, and distribution of biological samples to advance medical research.

a) Tissue Bank

Established in 1997, Tissue Bank provides a structured and efficient system for managing human biological samples used in cardiothoracic research. Its key objectives include:

- Streamlined Collection & Storage - Ensuring an efficient and well-coordinated process for handling biological materials.
- Increased Research Capacity - Improving the availability of tissue and blood products to support cardiothoracic research.
- Advancing Patient Care - Facilitating high-quality research that contributes to improved treatment outcomes.

b) Mesobank

Founded in 2012, Mesobank is the UK's largest biobank dedicated to mesothelioma research. It collects and distributes high-quality tissue, cell, and blood samples from mesothelioma patients to support scientific studies.

Mesothelioma is an aggressive cancer, primarily caused by asbestos exposure. As current treatments are not curative, Mesobank plays a critical role in advancing research by providing essential biological materials, clinical data, and radiological images. Its mission is to support the development of more effective therapies and improve patient outcomes.

c) The role of the Human Tissue Authority

Both RTBs operate under the governance of the Human Tissue Authority (HTA).

The HTA is the independent regulator established in 2005 in response to scandals from the 1990s, which uncovered widespread practices of removing and retaining human organs and tissue without proper consent in hospitals.

Created by Parliament as a non-departmental public body of the Department of Health, the HTA is governed by an Authority comprising lay and professional members appointed by the Government.

The HTA licenses and inspects organisations involved in the removal, storage, and use of human tissue for purposes including research, medical treatment, post-mortem examination, education, training, and public display. It also ensures that organ and stem cell donations from living individuals are made freely, without coercion or financial reward.

This Quality Manual outlines the policies, procedures, and governance framework designed to maintain regulatory compliance.

2. Scope

This manual applies to all activities involving the collection, storage, use, and disposal of human tissue that fall under the remit of the HTA research licence held by RPH. Adherence to the policies, procedures, and governance framework outlined herein is mandatory for all staff, collaborators, and external researchers working with or accessing human tissue through the hospital's RTBs.

3. Definitions and Abbreviations

CAP	Corrective Action Plan
CAPA	Corrective and Preventive Actions
CBC	Cambridge Biomedical Campus
CI	Chief Investigator
CLHc	Corporate Licence Holder contact
COSHH	Control of Substances Hazardous to Health
DATIX	A web-based incident reporting and risk management system used in many hospitals and healthcare organisations to report incidents, risks, and near misses.
DI	Designated Individual
Donor	Every human source, whether living or deceased of human cells or tissues
DPO	Data Protection Officer
EDC	Electronic Data Capture
ESR	Electronic Staff Record
Facilities	These include clinical facilities, laboratory facilities and storage facilities
GCP	Good Clinical Practice
GDPR	General Data Protection Regulation
GLP	Good Laboratory Practice
HT Act	Human Tissue Act 2004

HTA	Human Tissue Authority
HTA Standards	The regulatory guidelines and requirements established by the HTA to ensure the safe and ethical handling of human tissue.
ICF	Informed Consent Form
ICO	Information Commissioner's Office
IP	Intellectual Property
IQM	Ideagen Quality Management
LH	Licence Holder
LUG	Laboratory User Group
MTA	Material Transfer Agreement
NRES	National Research Ethics Service
PD	Person Designated
PFI	Private Finance Initiative
PIS	Participant Information Sheet
PPE	Personal Protective Equipment
Premises	Location where licensable activities are carried out
Q&A	Quality & Assurance
QC	Quality Control
QMS	Quality Management System
R&D	Research & Development
RAB	Research Advisory Board
RCA	Root Cause Analysis
RDD	Research & Development Directorate
REC	Research Ethics Committee
Relevant Material	Material, other than gametes, which consists of or includes human cells. It does not include embryos outside the human body, or hair and nail from the body of a living person.
RGPAS	Research Governance Project Approval System
RPH	Royal Papworth Hospital

RTB	Research Tissue Bank
Scheduled Purposes	Activities or purposes for which consent is required for the removal, storage, or use of human tissue.
SOP	Standard Operating Procedure
TBOG	Tissue Bank Operation Group
TCC	Tissue Collection Centre
Traceability	The ability to track and document the entire lifecycle of relevant material, from its origin (e.g. collection) through to its use and eventual disposal.
VPD-HLRI	Victor Phillip Dahdaleh Heart & Lung Research Institute

4. Significant Changes Since the Last Inspection

- **April 2018:** The Tissue Bank transitioned from the Pathology Business Unit to the Research & Development (R&D) Department.
- **April 2019:** RPH relocated from Papworth Everard to a new, purpose-built cardiothoracic facility on the Cambridge Biomedical Campus (CBC). Tissue Bank and Mesobank relocated to university laboratory space on the campus.
- **July 2021:** Dr. Stephen Webb was approved as the Designated Individual (DI) under HTA licence #12212.
- **July 2022:** The Victor Phillip Dahdaleh Heart & Lung Research Institute (VPD-HLRI) officially opened. The institute brings together researchers from academia, healthcare, and industry and serves as the home of RPH's R&D Department.
- **September 2022:** Eilish Midlane was approved as the Corporate Licence Holder contact (CLHc) under HTA licence #12212, following a change in organisational leadership.
- **July 2023:** The R&D Department implemented Ideagen Quality Management (IQM) (formerly Q-Pulse), a Quality Management System (QMS) software. IQM now supports document control, internal audits, risk management, CAPA (Corrective and Preventive Actions), and staff training records.
- **December 2024:** The relocation of Tissue Bank and Mesobank to the VPD-HLRI was completed.

5. Governance and Responsibilities

a) Human Tissue Act 2004

The Human Tissue Act 2004 (HT Act) establishes the legal framework for the removal, storage, use and disposal of human tissue in England, Wales, and Northern Ireland. This is defined as material that has come from a human body and consists of, or includes, human cells.

Consent is the fundamental principle of the legislation. The HT Act lists the purposes for which consent is required, these are called scheduled purposes:

- Anatomical examination
- Determining the cause of death
- Establishing after a person's death the efficacy of any drug or other treatment administered to them
- Obtaining scientific or medical information about a living or deceased person which may be relevant to any other person (including a future person)
- Public display
- Research in connection with disorders, or the functioning, of the human body
- Transplantation

Offences under the HT Act include:

- Removing, storing or using human tissue for Scheduled Purposes without appropriate consent.
- Storing or using human tissue donated for a Scheduled Purpose for another purpose.
- Trafficking in human tissue for transplantation purposes.
- Carrying out licensable activities without holding a licence from the HTA (with lower penalties for related lesser offences such as failing to produce records or obstructing the HTA in carrying out its power or responsibilities).
- Having human tissue, including hair, nail, and gametes, with the intention of its DNA being analysed without the consent of the person from whom the tissue came or of those close to them if they have died.

Penalties for non-compliance with the HT Act may include a fine, imprisonment for up to three years, or both.

b) HTA Governance Structure

To ensure compliance, key roles are assigned under the HT Act:

- **Licence Holder (LH)**
  - Can be a corporate body or a named individual responsible for applying for and maintaining the HTA licence.
  - Holds overall responsibility for ensuring compliance with licensing requirements.
  - Has the authority to:
    - Apply for a new licence.
    - Request changes to an existing licence.
    - Appoint or replace the Designated Individual (DI).

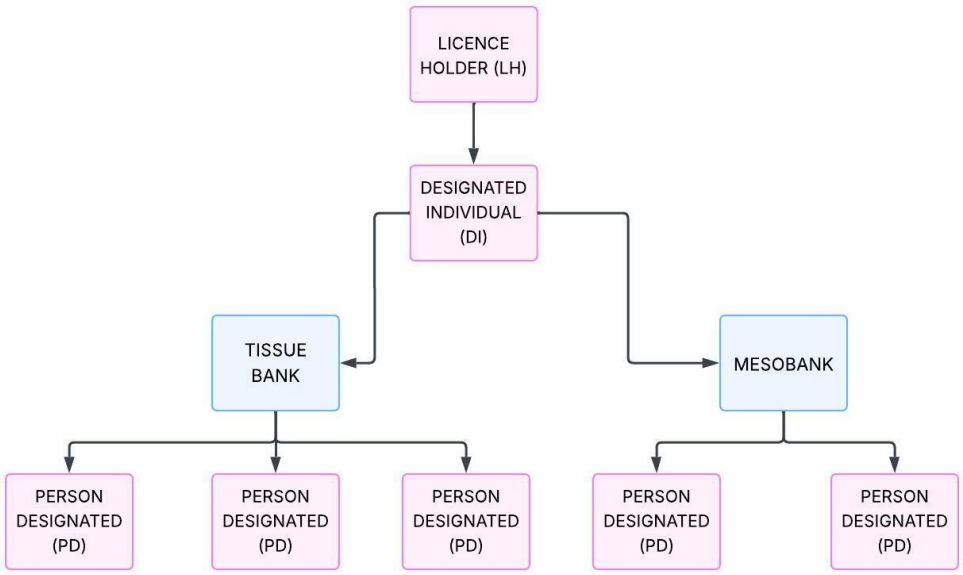
- **Designated Individual (DI)**

    - Legally responsible (under Section 18 of the HT Act) for ensuring all licenced activities comply with HTA regulations.
    - Named on the licence as the person supervising the licenced activity.
    - Ensures:
        - Suitable practices are in place for all licenced activities.
        - All personnel involved are trained and competent.
        - Full compliance with licence conditions.
    - Oversees all relevant human tissue material stored within licenced premises, including:
        - Collections stored under the HTA licence.
        - Tissue stored for research that has study specific Research Ethics Committee (REC) approval.

- **Persons Designated (PDs)**

    - Support the DI in supervising tissue-related activities.
    - Named on the licence but do not hold legal responsibility.
    - May work in a central hub or at satellite sites under the same licence.
    - Assist the DI in ensuring compliance within their specific groups.
    - Multiple PDs can be appointed under a single licence.
    - The DI must document each PD's formal acceptance of the role.

Figure 1 – Organogram of RPH HTA Licence Roles



Refer to Section 15 for HTA information and contact details.

c) Responsibilities of All Individuals Working Under the Licence

Beyond the formal roles set out by the HTA, all individuals operating under RPH's licence have a duty to:

- Understand their responsibilities under the HT Act.
- Treat donated material with dignity and respect.
- Protect donor privacy and maintain data confidentiality.
- Recognise cases where material must be stored under the licence and:
    - Disclose such material to a PD or the DI.
    - Store the material appropriately in a designated storage location.

d) Governance Meetings

The governance framework is reinforced by regular meetings involving staff engaged in licenced activities. These meetings are formally minuted, with actions recorded and followed up. Minutes are distributed to all relevant staff.

Governance meetings include:

- Monthly HTA meetings involving the DI, PDs, and RPH Tissue Bank Manager.
- Monthly Tissue Bank Operation Group (TBOG) meetings, with Tissue Bank matters discussed at the R&D Directorate (RDD) meetings, as appropriate.
- Quarterly Mesobank operational group meetings, chaired by the Mesobank Chief Investigator (CI), and complemented by regular monthly catch-up meetings.
- Laboratory User Group (LUG) meetings that take place every two months, providing advice, oversight, and a platform for the wider R&D team to engage in matters related to biological samples.

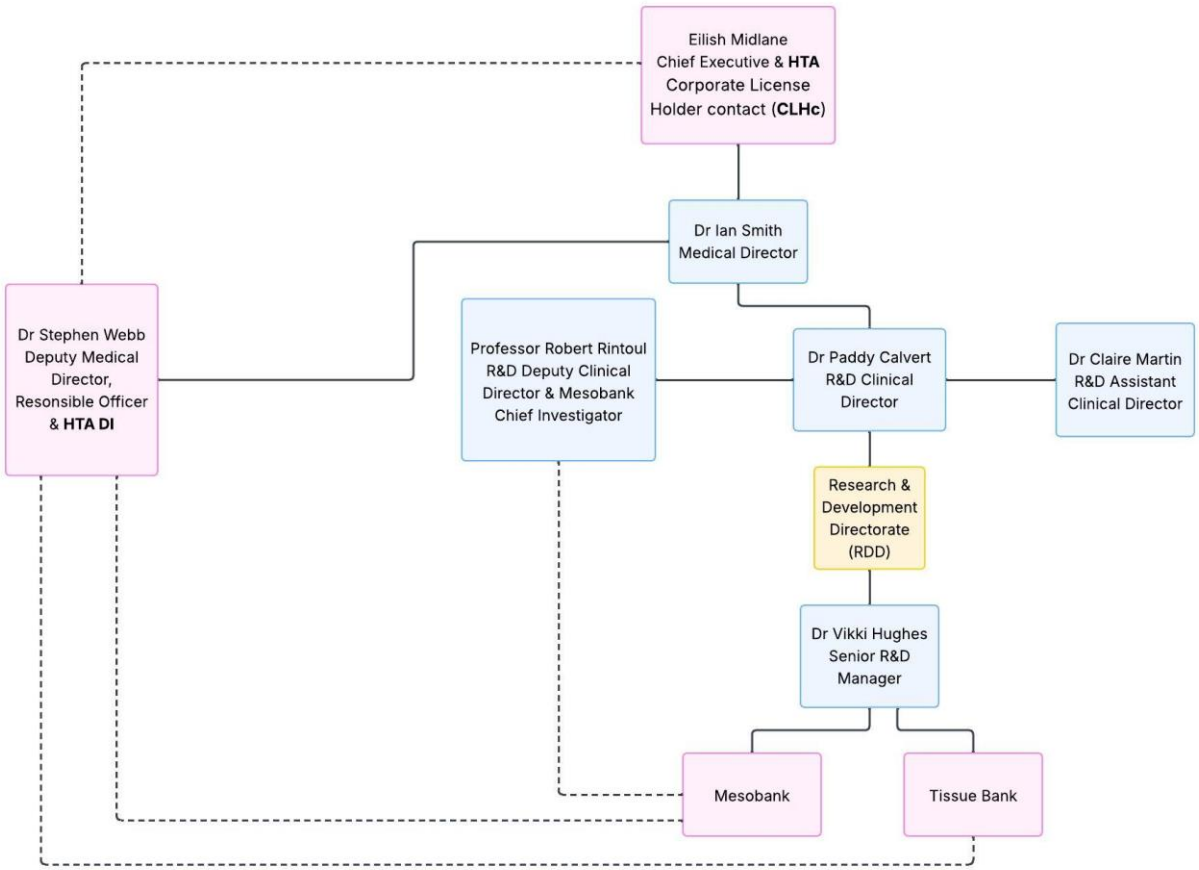
In addition to these meetings:

- Tissue Bank audit findings, are reviewed by TBOG and the R&D Quality & Assurance (Q&A) group, which meets every six weeks.
- Mesobank audits, are reviewed at Mesobank operational group meetings.
- HTA-related adverse events and near misses are reported according to SOP133 (Reporting and Managing HTA-Related Adverse Events).
- Significant incidents are reported via the DATIX system with review of incidents by the R&D/Tissue Bank/Mesobank manager as appropriate.

e) Trust Governance Structure

The Trust has three clinical directorates, each of which is headed by a Divisional Director of Operations. The directorates have the delegated responsibility for running the hospital on a day to day basis. In addition to the clinical directorates, the Trust has directorates for Education and Learning, R&D, Clinical Effectiveness and Audit.

Figure 2 – RPH HTA Licence Roles in relation to the broader Trust governance structure



6. Regulatory Framework

The RTBs comply with the following regulatory frameworks:

a) HTA Codes of Practice

The HTA Codes of Practice provide practical guidance to professionals carrying out activities within the scope of the HTA's remit. These codes cover key areas such as consent, governance and quality systems, traceability, and the management of premises, facilities, and equipment to ensure best practices in handling human tissue.

There are six HTA Codes of Practice:

- **Code A** - Guiding principles and the fundamental principle of consent
- **Code B** - Post-mortem examination

- **Code C** - Anatomical examination
- **Code D** - Public display
- **Code E** - Research
- **Code F** - Donation of solid organs and tissue for transplantation

Of these, only **Codes A and E** apply to the RTBs.

The codes are based on the following guiding principles:

  - Consent
  - Dignity
  - Quality
  - Honesty and openness

These principles are put into practice by ensuring that potential donors receive the information they need to make informed decisions regarding their consent. Regulated organisations also have a duty to handle human material in line with the donor's expressed wishes - ensuring it is removed, stored, used, and disposed of properly and with respect.

b) UK GDPR and Data Protection Act 2018

This legislation governs the processing of personal data, including donor information, ensuring confidentiality and compliance with data security principles.

- **Data Protection Principles** - Personal data must be processed lawfully, fairly, and transparently. It should be collected for specified, explicit, and legitimate purposes, ensuring minimisation and accuracy.
- **Confidentiality and Security** - All donor information must be protected through encryption, anonymisation, or pseudonymisation where necessary.
- **Data Subject Rights** - Donors have the right to access their data, request corrections, restrict processing, or request deletion (where applicable and in accordance with regulatory requirements).
- **Lawful Basis for Processing** - Data processing must have a lawful basis, such as explicit consent, public interest, or legitimate research interest.
- **Retention and Disposal of Data** - Personal data related to research samples is retained for the required regulatory period and securely deleted when no longer necessary. In accordance with the HTA's general guidance and the NHS Records Management Code of Practice 2021, all sample-related records are retained for a minimum of 30 years. Paper records are scanned and securely stored electronically.
- **Incident Reporting and Data Breach Management** - Any breaches involving donor data must be reported to the DI and Data Protection Officer (DPO), and, if necessary, to the Information Commissioner's Office (ICO) within the required timeframe.

c) Research Ethics Committee (REC) Approvals

RTBs may obtain generic REC approval, enabling them to support a wide range of future research projects without requiring separate REC approval for each study. This overarching approval can apply to both internal and external researchers, provided the research remains within the ethical scope approved by the REC.

As a condition of REC approval, RTBs must:

- Establish access policies outlining procedures for processing research applications, conditions of access, and governance requirements.
- Ensure all research requests are reviewed by an access committee in accordance with the bank's access policy.

A key benefit of generic REC approval is that individual studies do not require separate ethical review, as long as they are covered by the bank's existing approval and donor consent. Although REC approval is not a legal requirement for RTBs, it significantly streamlines research by eliminating the need for study-specific approvals. Approval is granted for up to five years and may be renewed.

Both RTBs have successfully obtained generic REC approval:

- Tissue Bank - Received a favourable opinion from the NRES Committee East of England - Cambridge East REC on 17 October 2023 (REC reference: 23/EE/0198).
- Mesobank - Received a favourable opinion from the NRES Committee East of England - Cambridge Central REC on 30 August 2023 (REC reference: 23/EE/0139).

d) Material Transfer Agreements (MTA) and Research Agreements

These agreements ensure the legal and ethical transfer of tissue samples between institutions, outlining responsibilities and conditions for use.

- **Purpose and Scope** - MTAs define the terms under which human tissue samples may be transferred.
- **Responsibilities** - Both the supplier and recipient institution must comply with regulatory and ethical requirements, ensuring proper handling, storage, and use of samples.
- **Confidentiality and Data Protection** - Donor identities and associated data must be protected in alignment with UK GDPR and institutional privacy policies.
- **Intellectual Property (IP) and Publications** - Agreements may specify how research findings, patents, and publications arising from the use of samples are managed and attributed.
- **Compliance Monitoring** - Recipient institutions must adhere to agreed protocols, with non-compliance potentially leading to termination of the agreement and legal action.
- **Sample Disposal** - MTAs outline procedures for the return or appropriate disposal of samples after research completion, ensuring traceability and regulatory adherence.

7. Quality Management System

The Quality Management System (QMS) ensures adherence to regulatory standards through the following elements:

a) Document Control

Document control at RPH ensures that all policies, Standard Operating Procedures (SOPs) and associated documents, are regularly reviewed and updated in accordance with regulatory requirements. Any modifications to existing policies or SOPs undergo an impact assessment and formal approval before implementation. All research activities follow Trust-approved SOPs, aligning with UK legislation and ICH Good Clinical Practice (GCP), and these SOPs and associated documents are accessible to staff via the Trust's intranet.

Governance of SOPs is overseen by the SOP Committee, which ensures that all procedures remain accurate, up to date, and compliant with applicable legislation. Each SOP is reviewed at least every three years or earlier if there is a change in regulation. The review process is coordinated by an administrator working from a rolling timetable, and is governed by SOP001 (SOP Production, Approval & Review).

New or amended SOPs are submitted to the SOP Committee, which meets bimonthly to review them. Tissue Bank specific SOPs are reviewed by TBOG. Training requirements are identified during the review phase, and once approved, amendments are forwarded to the R&D Clinical Director for ratification.

To ensure staff awareness and compliance, new or updated SOPs are communicated via email and intranet updates. A clear timeframe is provided for staff to read and acknowledge these documents. Compliance is monitored through regular audits, and any deviations from SOPs are recorded and investigated.

The R&D department has implemented the IQM system, a secure electronic platform that supports comprehensive document control. Within IQM, all documents are version-controlled and stored appropriately. The system also facilitates internal audits, risk management, CAPA and tracking of staff training records.

b) Training and Competency

All new staff members undertake a comprehensive induction programme, which includes mandatory training tailored to their specific role. For those based within the VPD-HLRI, attendance at both the Building Induction and, where applicable, a Laboratory Induction is required. Training needs are initially identified during this induction period and are then reassessed annually during performance reviews. Further details can be found in the Trust policies listed in Appendix 3 – Workforce, GD065 Induction handbook for R&D staff, FRM126 R&D Induction checklist for new starters and FRM113 R&D Clinical and Laboratory Training Programme.

Staff involved in key operational tasks are required to complete annual competency self-assessments, using forms FRM114 and FRM127, as part of their appraisal process to ensure they are capable of performing their duties. These assessments are supported by refresher training, as required.

Training compliance is closely monitored. Records are maintained in the Electronic Staff Record (ESR) system and, where appropriate, within departmental platforms such as IQM. Regular reviews of this data help ensure all staff remain up to date with their required training.

Personnel involved in tissue-related activities must meet specific training standards to ensure HTA compliance. Before obtaining patient consent for the Tissue Bank, staff must be trained and deemed competent in the consent process. This includes completing the Tissue Bank training available via Learnzone, with refresher training recommended every three years or when significant updates occur. Additionally, staff are encouraged to complete the "Research and Human Tissue Legislation" e-learning module provided by the UKRI's Medical Research Council Regulatory Support Centre. This training offers a comprehensive overview of UK legislation, best practices, and compliance guidance.

For information on laboratory-specific training, including induction, mentoring, practical skills assessments, and ongoing skill maintenance, please refer to Section 5 of GD044 - *Research and Development Laboratory User Manual*.

Please note: It is the responsibility of every staff member to ensure they are properly trained for the tasks they undertake and to actively maintain and develop their professional competencies.

c) Risk Management: Identification, Mitigation, and Reporting of Risks

Risk management at RPH involves the systematic identification, evaluation, mitigation, and documentation of risks associated with licenced activities. All relevant practices and processes are subject to documented risk assessments, which are regularly reviewed to ensure they remain current and effective.

Staff are given access to these risk assessments and receive appropriate training to help them understand and mitigate risks relevant to their roles. Each assessment includes a detailed identification of the specific risk, an evaluation of its severity - rated as low, medium, or high, and a set of mitigating actions designed to reduce both the likelihood and impact of the risk. Following the implementation of mitigation measures, a residual risk assessment is carried out to determine any remaining exposure.

A comprehensive list of risk assessments associated with licenced activities is available in Appendix 2. The Trust's Risk Assessment Procedure is outlined in DN290.

d) Adverse Event & Incident Reporting (DATIX System)

- All HTA related adverse events are reported in accordance with SOP133 (Reporting and Managing HTA-Related Adverse Events). Where applicable, incidents are also reported

through the Trust's incident reporting system, DATIX. For further guidance, refer to Trust Policy DN070.

- Incident reports on DATIX are automatically forwarded to departmental managers for investigation.
- Where requested by the DI, a Root Cause Analysis (RCA) is carried out to identify systemic failures and implement corrective actions.
- In line with HTA reporting requirements, any near misses related to the RTBs are also recorded in an Adverse Events and Near Miss Reporting Log for review and further action.
- Adverse Events (including near misses) and Serious Incidents must be reported to the DI and the HTA, if required.

e) Audits

Audits are conducted regularly to highlight areas for improvement. The internal Audit Schedule Template is detailed in Appendix 4.

Audits may be:

- Internal - Conducted by a PD, the DI, or another member of the team. Tissue Bank SOPs and associated risk assessments are included in R&D's audit program.
- External - Conducted by the HTA or by another independent establishment.

f) Continuous Improvement: Implementation of Corrective and Preventive Actions (CAPA)

RPH is committed to continuous improvement, ensuring that risks, non-conformances, and process inefficiencies are addressed through a Corrective and Preventive Action (CAPA) process. Corrective Action Plans (CAPs) are developed and implemented to prevent the recurrence of any adverse events or serious incidents.

- **Identification of Corrective and Preventive Actions (CAPA)**

The most appropriate Corrective/Preventive Action (CAPA) is identified through:

- Risk Assessments - Routine evaluations of licenced activities to identify potential risks.
- Adverse Event Investigations - Analysis of incidents logged in DATIX and in the Adverse Events and Near Miss Reporting Logs.
- Audit Findings - Internal and external audit outcomes, including HTA inspections.

CAPAs are discussed regularly with the DI at monthly HTA meetings to ensure alignment with regulatory requirements and process improvement objectives.

8. Consent and Donor Management

a) Consent Process

Consent is obtained in accordance with HTA guidance and other relevant regulatory frameworks, ensuring it is informed, voluntary, and properly documented. Donors receive comprehensive information about the RTBs, including the purpose of sample collection, how their samples will be used, potential risks, and possible future applications of their donation.

REC approved Participant Information Sheets are readily accessible. For Tissue Bank, the PIS can be found on the RPH website via the following link: PIS - Tissue Bank. For Mesobank, the document is available on the Mesobank website: PIS - Mesobank.

Trained personnel oversee the consent process, ensuring that donors fully understand their rights and have the opportunity to ask questions before making a decision. All consent documentation is securely maintained within patient records, providing traceability while safeguarding donor anonymity.

b) Withdrawal of Consent

Donors have the right to withdraw their consent at any time without providing a reason. This decision will not affect their medical care or treatment. Upon withdrawal, all unused identifiable samples and associated data will be removed from the RTBs and disposed of in compliance with regulatory requirements.

If anonymised data or processed samples have already been incorporated into ongoing research, the RTBs will make reasonable efforts to respect the donor's wishes while balancing scientific and regulatory constraints. Although it is not possible to recall samples and data that have already been used in research, RTBs will request the return of any unused original samples to prevent further research on the tissue. All withdrawal requests are formally documented to ensure compliance with institutional and regulatory policies.

c) Confidentiality and Data Protection

Donor information is pseudonymised to protect privacy, with strict access controls in place. Data management processes vary between the RTBs to ensure security and compliance.

At Tissue Bank, each donor is assigned a unique identifier code upon registration, linking their samples to donor records without revealing personal information. All data is securely stored within the Tissue Bank database, accessible only to authorized staff. A paper and an electronic log is maintained as a backup record at the time of banking, and project-specific data searches are managed within restricted-access Excel sheets.

For Mesobank, donor data is stored within a web-based Electronic Data Capture (EDC) system, where access is restricted to staff listed on the delegation log for each Tissue Collection Centre (TCC). Personnel can only access, input, or edit data related to donors recruited by their respective sites. Like the Tissue Bank, each donor is assigned a unique identifier code, ensuring that their personal information remains confidential.

All donor data is managed in strict compliance with GDPR and institutional data security policies to prevent unauthorised access or misuse. Personal identifiers are stored separately from research data within secure systems, accessible only to authorised personnel. Any transfer of data to third parties follows established data-sharing agreements, ensuring that confidentiality is maintained across all research collaborations.

9. Sample Collection, Processing, and Storage

This section outlines the procedures for the collection, processing, and storage of human samples, ensuring full compliance with HTA licensing conditions and regulatory best practices. These protocols are designed to maintain the integrity and traceability of samples throughout their lifecycle. The procedures are continually updated to reflect advances in laboratory practices, ethical guidelines, and research requirements.

Note: All RPH research staff working in laboratory areas or handling biological materials are required to read the *Research and Development Laboratory User Manual* GD044 before starting any work. A comprehensive list of relevant SOPs and risk assessments can be found in Appendices 1 & 2.

a) Sample Collection

All human tissue samples collected by or on behalf of the RTBs adhere to SOPs, ensuring high-quality, reproducible, and traceable results. Standardised protocols are in place for the collection of various sample types, including blood, pleural fluid and cardiothoracic tissue.

For researchers requiring custom tissue collections that fall outside existing SOPs, a sample collection protocol must be submitted for review. This protocol is evaluated in conjunction with the research application form to ensure both compliance and feasibility.

At the point of collection, each sample is assigned a unique identifier to link it to the corresponding donor record, ensuring traceability throughout the process. Additionally, samples are transported in temperature-controlled containers, where applicable, and the RTB databases are used to manage sample location, status, and metadata in real-time.

b) Sample Processing

RPH operates in multiple laboratory areas on the CBC, each designed to provide a controlled environment for sample processing. All processing occurs in designated spaces that meet biosafety

standards. These laboratories adhere to Good Laboratory Practice (GLP) and Good Clinical Practice (GCP) guidelines to ensure that the work conducted is compliant with regulatory requirements.

Sample processing steps - such as centrifugation, freezing, and fixation, are carried out according to pre-approved SOPs, with all personnel using validated reagents and calibrated equipment.

c) Sample Storage

To ensure sample viability and to prevent deterioration, RPH maintains stringent storage conditions, fully compliant with regulatory guidelines. The storage conditions are tailored to the intended use of the samples. For long-term tissue storage, samples are kept at -80°C.

Storage units are equipped with real-time temperature monitoring systems to ensure consistency, with automated alarms triggered in case of deviations. For refrigerators, temperature checks are conducted manually on a daily basis, and readings are recorded on a temperature log. Access to storage facilities is restricted to authorised personnel only, in accordance with security protocols. The RTBs use an electronic sample tracking system to manage the location, status, and metadata of samples, and routine audits are conducted to ensure that storage conditions, labelling, and inventory management remain in compliance with regulatory standards.

d) HTA Licensing & Compliance

RPH operates under a "hub" licensing model within the HTA licensing framework, with the VPD HLRI licensed under the main site. Detailed HTA licence information for the licenced premises is provided in Appendix 5, and a copy of the HTA licence must be prominently displayed at each location.

It is important to note that the RPH licence only permits the **storage** of relevant material originating from the human body for a Scheduled Purpose - in our case, for “research in connection with disorders, or the functioning, of the human body.”

Only pre-approved storage locations may be used under the HTA licence. If any staff suspect that human tissue is being stored in an unapproved location, they are required to notify the DI immediately for investigation and corrective action.

10. Sample Traceability & Disposal

A comprehensive log is maintained from the point of collection to final disposal, capturing a sample’s storage history, research usage, and any movements.

Disposal of samples is conducted in compliance with regulations and institutional waste policies, ensuring respectful handling. Proper documentation guarantees full traceability throughout the process. Before a sample is disposed of, several checks must be completed. This includes verifying

whether the donor has withdrawn consent (if applicable) or confirming that the research or project involving the sample has concluded.

The method of disposal, whether through incineration, chemical treatment, or another approved process, is thoroughly documented. Disposal records are maintained to ensure compliance and accountability.

11. Sample Access and Release

a) Prior to Work Commencing in Tissue Bank

Before starting a new Tissue Bank project, ethical approval must be in place. The project application is reviewed by TBOG to assess its feasibility, available capacity, and the potential to grant ethical approval if requested. Investigators are responsible for responding to any queries raised by TBOG and for covering all associated study costs.

If study-specific protocols apply, the team must complete Control of Substances Hazardous to Health (COSHH) and risk assessments before tissue collection. Additionally, all involved parties must sign the Tissue Bank project application form, and an MTA must be in place before any sample is released to parties external to RPH.

b) Mesobank

Access to Mesobank samples must comply with the established Mesobank protocol, which has been reviewed and approved by the REC. Depending on the nature of the request, applications are reviewed either by an independent Research Advisory Board (RAB) - comprising members from scientific and lay backgrounds - or by the Project Team.

Successful applicants will receive a favourable letter of intent to supply, along with an MTA. This contract must be signed by all parties before any samples can be released.

c) Prior to Work Commencing in Research (Non-RTB Sample Related)

For sample related research projects not involving Tissue Bank or Mesobank, the relevant approvals and authorisations must be in place before any research activities are undertaken. Once the study's feasibility has been assessed by the R&D Governance Team, the project is reviewed using the Research Governance Project Approval System (RGPAS) process as outlined in R&D SOP034: Trust Confirmation of Capacity and Capability and Sponsor Green Light notification to Conduct Research Studies.

All biological samples received and stored must be accompanied by a completed and signed Informed Consent Form (ICF). A detailed sample storage log must be maintained and made readily available to the DI or the LUG upon request for audit or review purposes.

Furthermore, any transfer of samples between organisations must be governed by a formal agreement. This agreement should clearly outline the terms of the transfer, including the safe transport, storage, use, and disposal of the samples.

d) Sample Transfer Documentation Requirements

A manifest must be prepared and included with all sample shipments to allow the recipient to verify that all samples have been received. Study sponsors may provide their own specific manifests for this purpose. If a sample transfer or release form is not supplied by the study sponsor, the R&D Samples Release Confirmation Form (FRM082) should be used instead.

12. Premises / Facilities & Equipment

a) Premises and Environmental Conditions

RPH is committed to maintaining a safe, clean, and compliant environment that meets regulatory requirements.

- **Facility Maintenance & Monitoring**

  Regular inspections are carried out to ensure the premises remain suitable for the storage, handling, and processing of human tissue. In addition to the triannual HTA walkaround conducted by the DI, a biannual Health and Safety Inspection is undertaken in the RPH laboratory areas. During each inspection, a Laboratory Inspection Checklist is used to identify and document potential hazards, along with recommended corrective actions. The findings are reviewed and discussed at LUG meetings. Furthermore, the Laboratory and Facilities Co-ordinator regularly inspects laboratory areas within the VPD-HLRI building. All identified issues, required actions, and their progress are recorded and tracked in a Laboratory Surveillance Spreadsheet.

  The Infection Control Team also conducts regular ad hoc audits as part of their monitoring responsibilities. These audits and reviews are designed to ensure that staff maintain an understanding of infection and hygiene levels across the hospital and use this information to work towards optimising standards. The findings are reviewed and discussed at LUG meetings. Following a recent audit, a Weekly Environmental / Infection Control Audit now takes place in the RPH laboratory areas using an agreed checklist.

  Maintenance schedules are in place for essential infrastructure, and any deviations or facility-related issues are reported and addressed promptly. For RPH facilities, this process is managed through the PFI Estates Helpdesk Service. For the VPD-HLRI, issues are reported via the University's AssessNET Health and Safety Software and to the Laboratory and Facilities Coordinator and / or the Building Services Manager as appropriate.

- **Equipment Maintenance and Calibration**

  All critical equipment used in the handling, storage, and analysis of human tissue is regularly maintained and calibrated to ensure operational accuracy, reliability, and compliance with regulatory standards.

  - **Maintenance Procedures:**
    - A preventive maintenance and service schedule is followed for all critical equipment, including biosafety cabinets, freezers, pipettes, and centrifuges.
    - Any faulty or malfunctioning equipment is reported immediately, and usage is suspended until rectified.

  - **Calibration Procedures:**
    - Regular calibration checks are conducted on temperature monitoring devices and laboratory instruments to ensure accuracy.
    - Calibration certificates are maintained as records of compliance.
    - If calibration results fall outside acceptable limits, corrective actions are taken, and equipment is re-evaluated before further use.

Evidence of maintenance and calibration visits are recorded in the MASTER R&D Equipment list.

b) Health and Safety Considerations

A robust health and safety framework is in place to ensure a secure working environment for all personnel handling human tissue and related materials.

- **Workplace Safety Measures:**
  - Compliance with Control of Substances Hazardous to Health (COSHH) and Health and Safety at Work Act regulations.
  - Regular risk assessments are conducted to identify potential hazards and implement necessary controls.
  - Fire safety, emergency response procedures, and first aid provisions are reviewed and updated as needed.

- **Protective Measures:**
  - Personal Protective Equipment (PPE), including gloves, lab coats, face shields, and respiratory protection, is provided and required in designated areas.
  - Proper disposal protocols are followed for biological waste, ensuring compliance with waste management regulations.
  - Staff receive mandatory training on biosafety, infection control, and emergency procedures.

All premises, facilities, and equipment are subject to regular quality assurance checks to ensure ongoing compliance with regulatory requirements and internal quality management policies.

13. Complaints Procedure

Complaints serve as a valuable tool for quality assurance. RPH is committed to handling all complaints in accordance with its Complaints Policy (DN195). Any complaints related to RPH's Research Sector HTA Licence will be escalated to the DI for appropriate review and resolution.

14. Review and Continuous Improvement

This manual is reviewed every three years or as needed in response to regulatory changes and stakeholder feedback.

15. HTA Information and Contacts

HTA Research Licence: 12212

Key Contacts:

- Named Contact for Licence Holder (LH):
  Eilish Midlane - eilish.midlane@nhs.net

- Designated Individual (DI):
  Dr Stephen Webb - stephen.webb@nhs.net

- Persons Designated (PDs) Tissue Bank
  Dawne Amato - dawne.amato@nhs.net
  Marie Malgapo - marie.malgapo@nhs.net
  Stephanie Wilmott - stephanie.wilmott1@nhs.net

- Persons Designated (PDs) Mesobank
  Sallyanne Meakins - sallyanne.meakins@nhs.net
  Holly Upton - holly.upton@nhs.net

HTA Contact Details:

Human Tissue Authority
2 Redman Place (2nd Floor)
Stratford, London, E20 1JQ
Email: enquiries@hta.gov.uk
Phone: 020 7269 1900

Appendix 1 – Core SOP Matrix

Core Licensable Activity	Policy / Procedure	Tissue Bank	Mesobank
Consent	SOP 103: Research Tissue Bank consent and request forms and withdrawal of consent.	✓	✓
	SOP 003: Informed Consent for Research Studies.	Not Applicable	✓
Collection	SOP 101: How to use the Tissue Bank Database	✓	Not Applicable - Mesobank is not currently collecting or processing samples under the RPH Research Licence.
Receipt	SOP 102: Tissue Bank Project Management	✓	
Labelling	SOP104: Zebra Printer	✓	
Specimen preparation / preservation	SOP 095: Laboratory Biological Safety Cabinet	✓	
	SOP 096: Centrifugation	✓	
	SOP 098: Pipetting	✓	
	SOP 110: SlideMate Printer	✓	
	SOP 111: Microtomy – Paraffin Blocks and Section Mounting	✓	
	SOP 112: Hand Coverslipping	✓	
	SOP 114: Extraction Hoods – Biological Safety Cabinets and Fume Hoods	✓	
	SOP 128: H&E Staining	✓	
	SOP 106: Blood Banking	✓	
	SOP 107: Fresh Tissue	✓	
	SOP 108: Freezing Fresh Tissue Samples	✓	
Storage	SOP 131: Research Tissue Bank Freezer Storage, Maintenance and Breakdown.	✓	✓
	GD 043 Freezer alerts and emergency sample transfers.	✓	✓

Core Licensable Activity	Policy / Procedure	Tissue Bank	Mesobank
	SOP 116: Blocks and Slides Archiving, retrieval and disposal.	✓	✓
Relevant transport arrangements	SOP 134: Research Tissue Banks Transport of Human Tissue	✓	✓
Cleaning and decontamination	DN 418 - Decontamination of Medical Electrical Equipment prior to maintenance or repair - Procedure	✓	✓
	GD 044 R&D Laboratory User Manual	✓	✓
Disposal	SOP 130: Waste Management and Disposal.	✓	✓
	SOP 116: Blocks and Slides Archiving, retrieval and disposal.	✓	✓
	DN 375 - Waste management policy	✓	✓
	SOP 124 Handling of Biological Samples	✓	✓
	Medicine Safety Manual Part 1 & 2	✓	✓

Appendix 2 – Risk Assessments

Title	Assessment ID No: (Datix)
Blood Collection	RAC/RD/TBR/001
Fresh Samples	RAC/RD/TBR/004
Labelling	RAC/RD/TBR/005 (2400)
Event of Storage Failure and Loss of Relevant Material	RAC/RD/TBR/006
Transport of Relevant Material	RAC/RD/TBR/007
Loss of Traceability	RAC/RD/TBR/008
SlideMate AS	RAC/RD/TBR/009
Suitability of Premises	RAC/RD/TBR/010
Use of Dry Ice	RAC/RD/TBR/011
Freezer breakdown contingency	RAC/RD/TBR/016
Centrifuges	RAC/RD/TBR/017 (2436)
Spillage	RAC/RD/TBR/018
Cassette Printer	RAC/RD/TBR/019
Hand Coverslipping	RAC/RD/TBR/020
Pipetting	RAC/RD/TBR/021
Microtomy and section mounting	RAC/RD/TBR/022
Biological Safety Cabinet	RAC/RD/TBR/025
Staining Machine	RAC/RD/TBR/026
Archiving Blocks and Slides	RAC/RD/TBR/027
Tissue Bank Database	RAC/RD/TBR/029
Document Control	RAC/RD/TBR/030
Waste Management and Tissue Disposal	RAC/RD/TBR/032
Consenting patients for Tissue Bank and Withdrawal of consent	RAC/RD/TBR/034 (2398_2417)

Title	Assessment ID No: (Datix)
Dealing with frozen samples	RAC/RD/TBR/036 (2437)
Handling, Processing and Freezing Fresh Tissue and Blood in the HLRI	RAC/RD/TBR-037

Appendix 3 – Trust Policy and Procedures

Trust-wide policies and procedures serve as an overarching guide and form an integral part of the Trust's risk management framework. These policies and procedures apply to all staff working within the Trust, regardless of their involvement in research studies. The policies and procedures listed are relevant to research activities and may be referenced within the Research & Development (R&D) Standard Operating Procedures (SOPs).

All Trust documents are subject to a maximum review period of three years, after which they must undergo a full review rather than a minor update. Once a document exceeds its review date, it is marked as expired and is no longer considered current. The document will then be reviewed by the designated document lead and submitted for approval by the Director, the Divisional Director, and ultimately the Board of Directors.

Information Governance

Title	Reference
Document Control Procedure	DN001
Information Governance policy	DN108
Records Management Policy	DN260
Data Protection Policy	DN341
Information Security Policy	DN470
Information Risk Policy	DN558
Data Quality Policy	DN585
Information Security - Information Asset Security and Control Procedure	DN613
Information Security - Network Management Procedure	DN617
Record Appraisal and Disposal Procedure	DN662
Individual Rights (Data Privacy) Process	DN761

Estates and Facilities

Title	Reference
Security Policy	DN057
Security Trustwide procedure	DN058
Medical Devices Maintenance and Repair	DN298
Fire Policy	DN322
Waste management policy	DN375

Title	Reference
Decontamination of medical electrical equipment prior to maintenance or repair procedure	DN418

Quality and Risk Management

Title	Reference
Reporting of Accidents Adverse Events Incidents and Defects Policy	DN070
Moving and Handling Policy	DN101
Policy for the Control of Substances Hazardous to Health (COSHH)	DN115
Risk Management Strategy	DN139
Health and Safety Inspection Form	DN150
Policy for Sharps injuries and Splash Incidents involving Blood or Body Fluids	DN180
Complaints policy	DN195
Incidents – Guidance for Investigation of Incidents, Complaints and Claims	DN206
Moving and Handling Procedure	DN271
PALS operating procedure	DN278
Health and Safety Policy	DN289
Health & Safety Risk Assessment Procedure	DN290
Consent to Examination or Treatment Policy	DN306
First Aid Procedure	DN483
Business continuity policy	DN513
Interpreting and Translation Services Procedure	DN514
Risk Management Handbook	DN677

Workforce

Title	Reference
Appraisal procedure	DN079
Induction Procedure	DN081
Freedom to speak up: Speak up policy for the NHS	DN259
Mandatory Training Procedure	DN302

Other

Title	Reference
External agency visits, inspections and accreditations	DN273
Use of Human Biological Materials for Research	DN361

Appendix 4 – Audit Schedule Template

Year												
Audit Title	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Consent (C)												
C1 Consent is obtained in accordance with the requirements of the HT Act and as set out in the HTA's Code of Practice												
C2 Staff involved in seeking consent receive training and support in the essential requirements of taking consent												
Governance and Quality Systems (GQ)												
GQ1 All aspects of the establishments work are governed by documented polices and procedures as part of the overall governance process												
GQ2 There is a documented system of audit												
GQ3 Staff are appropriately trained in techniques relevant to their work and are continuously updating their skills												
GQ4 There is a systematic and planned approach to the management of records												
GQ5 There are systems to ensure that all adverse events are investigated promptly												

GQ6 Risk assessments of the establishment's practices and processes are completely regularly, recorded and monitored												
Traceability (T)												
T1 A coding and records system facilitates the traceability of bodies and human tissue, ensuring a robust audit trail												
T2 Bodies and human tissue are disposed of in an appropriate manner												
Premises, Facilities and Equipment (PFE)												
PFE1 The premises are secure and fit for purpose												
PFE2 There are appropriate facilities for the storage of bodies and human tissue												
PFE3 Equipment is appropriate for use, maintained, validated and where appropriate monitored												

Appendix 5 – Royal Papworth Hospital HTA Licence

HTA
Human Tissue Authority

Licensing Number **12212**

Licence Holder **Royal Papworth Hospital NHS Foundation Trust**

Licensed Premises **Royal Papworth Hospital**
Papworth Road
Cambridge Biomedical Campus
Cambridge
CB2 0AY

Designated Individual **Dr Stephen Webb**

This licence is granted under Section 16 (2) (e) (ii) of the Human Tissue Act 2004.

This licence authorises the storage of relevant material which has come from a human body for use for the following scheduled purposes:

- Determining the cause of death
- Establishing after a person's death the efficacy of any drug or other treatment administered to him
- Obtaining scientific or medical information about a living or deceased person which may be relevant to any other person (including a future person)
- Public display
- Research in connection with disorders, or the functioning, of the human body
- Clinical audit
- Education or training relating to human health
- Performance assessment
- Public health monitoring
- Quality assurance

The licensed activity should be carried on only at the licensed premises specified above, and under the supervision of the Designated Individual.

This licence is subject to the conditions set out in the Annexes accompanying this licence as may be subsequently varied pursuant to an application under paragraph 8 of Schedule 3 to the Human Tissue Act 2004.

This licence is valid from the date specified below and will remain in force until revoked.

.....
Lynne Berry CBE
Chair

.....
Nicolette Harrison
Director of Regulation

Valid from: 24 June 2022