Pathology Specimens Procedure

(IPC Manual)
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1. **INTRODUCTION**

Laboratory investigation of specimens is integral to clinical care. A pathology specimen is identified as any substance either solid or liquid, e.g. blood, urine, and faeces, obtained from a patient for the purpose of analysis.

As all specimens may contain micro-organisms capable of causing disease they must be obtained, handled and transported with care, as accidents could result in the transmission of infection to all people involved, including healthcare workers (HCWs), patients and their carers, receptionists and transport personnel.

Any HCW responsible for handling specimens has a responsibility and duty for the safe collection, handling and transporting of specimens outlined under the Health and Safety at Work Act (1974) and the Control of Substances Hazardous to Health (Amendment) Regulations 2004.

2. **PROCEDURE**

2.1 **Standard Precautions**

When handling, collecting and transporting specimens, standard precautions and the following procedures must be adhered to:

- use of personal protective equipment (PPE)
- aseptic non-touch technique (ANTT)
- management of spillages
- hand hygiene

All procedures can be accessed via the IPC Manual/this link: [https://www.rdash.nhs.uk/46192/infection-prevention-and-control-manual/](https://www.rdash.nhs.uk/46192/infection-prevention-and-control-manual/)

When dealing with specimens of suspected/confirmed hazard group 3 and 4 organisms additional precautions may be required. These will be detailed in the respective policy/procedures or further to advice given by the Consultant Microbiologist.

All specimens from patients with known or suspected group 3 organisms must be designated high risk and a “danger of infection” label **must be applied to both the container and form.**

**Hazard group 3 organisms include:**

- Bacillus Anthracis (anthrax)
- Brucella species (brucellosis)
- Chlamydia psittaci (psittacosis)
- Escherichial coli 0157 (E.coli 0157)
- Shigella dysenteriae (dysentery)
• Salmonella typhi and paratyphi (typhoid and para-typhoid)
• Mycobacterium Tuberculosis and other mycobacterium (Tuberculosis)
• Human immunodeficiency virus (HIV)
• Hepatitis B and C
• Plasmodium falciparum (falciparum malaria)
• Rabies Virus
• Prions causing all forms of Transmissible Spongiform Encephalopathies such as Creutzfeldt-Jakob Disease
• SARS virus

It is highly unlikely that hazard group 4 organisms will be encountered within the Trust. If this occurs or is suspected then advice must be sought from the Consultant Microbiologist or the Infectious Diseases Physician (Royal Hallamshire Hospital, Sheffield) before any specimens are obtained by contacting switchboard at the Royal Hallamshire Hospital (on 0114 271 1900) and asking for the on-call Infectious Diseases Registrar. The patient would be transferred to an Infectious Diseases Unit as a priority.

**Hazard group 4 – main organisms include:**

• Viruses that cause haemorrhagic fevers e.g. Lassa and Ebola virus

### 2.2 Collection/Packaging of Specimens

Staff obtaining specimens must be trained and competent in undertaking an ANTT procedure where required to obtain a specimen, as failure to do so may introduce pathogenic organisms to a vulnerable site or may cause contamination of the specimen.

The primary specimen containers and transport media must be in date.

Request forms will be specific to the processing laboratory but the generic information below will be required as a minimum:

• Patient’s name, gender and address
• Date of birth
• NHS number (A/E or District Number if patient not registered)
• Patient address
• Date and time sample was taken
• Specimen type
• Investigation(s) required
• Clinical information e.g. midstream / catheter urine sample, pyrexia, description of wound
• Relevant medical history e.g. recent travel abroad, antibiotic history, symptom history, current drug therapy
• GP/Consultant, Ward/Practice/Team
• Name and signature of clinician requesting the specimen
• Request for copy reports, if required
For samples processed at Doncaster and Bassetlaw Teaching Hospitals foundation Trust (DBTHfT) the fields on the request form can either be completed with an ICE Demographic label (if access to this system is available) or completed manually with the above information.

Clinical biochemistry, haematology, immunology, microbiology and virology specimens must be placed in the bag attached to the form and sealed. Several blood samples from an individual patient can be placed in the same bag but virology/serology samples require a separate form and bag. Blood cultures, urines, swabs, fluids, sputum and faeces samples must not be mixed with blood samples.

Specimens should (wherever possible) be obtained before starting antibiotics unless treatment is very urgent. However, if antibiotic therapy is already in progress or recently completed, this information must be clearly written on the form.

In instances where patients are requested to collect their own specimens, education on the specimen collection method, instructions on handling the specimen and prompt returning of the specimen to promote accurate results and patient safety is paramount.

Staff must ensure that the guidance in appendix 37 is adhered to with regards to the packaging of specimens in order to comply with regulations.

Staff will also need to refer to appendix 38 for further guidance in relation to the collection, storage and transportation requirements for specimens. Staff in Rotherham can obtain guidance from the pathology department at The Rotherham NHS Foundation Trust (01709 820000) and staff in North Lincolnshire from Scunthorpe General Hospital (01724 282282).

2.3 Transport of Specimens

The transport of infectious substances from and to healthcare premises is subject to the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011 in which pathogens are classified into categories A and B.

All packaged specimens must be carried in a secure, robust, leak proof container identified by the biohazard label Class 6.2 infectious substances and UN3373 code. Specimens must not be transported unless such a container is used. Transport documentation (appendix 39) must be carried in all vehicles carrying specimens at all times.

Containers designated for the transport of clinical specimens must never be used for the transportation of any other items. This container must be identified with a contact telephone number in case the box is lost.

Containers must be cleaned if visibly dirty or after any visible spillage. Please refer to section 2.4 for guidance in the event of a spillage.
Under current Accord européen relatif au transport international des marchandises Dangereuses par Route (ADR) regulations (2017), dedicated Trust vehicles must have at least one portable fire extinguisher for inflamabillity classes A, B and C, with a minimum capacity of 2 kg dry powder (or an equivalent capacity for any other suitable extinguishant agent) suitable for fighting a fire in the engine or cab of the transport unit, two self standing warning signs (e.g. reflective cones or triangles or flashing amber lights which are independent from the electrical equipment of the vehicle), a chock of a size suitable to the weight of the vehicle and to the diameter of the wheels, a suitable warning vest or warning clothing (e.g. as described in European Standard EN 471) for each member of the vehicle crew and a pocket lamp for each member of the vehicle crew.

If other goods are also transported in dedicated Trust transport vehicles (if applicable for mixed transport under ADR 2017), there must be a physical barrier between “clean” and “dirty” items and the vehicles must have impervious internal surfaces that can be cleaned appropiatley in the event of a spillage.

2.4 Spillages of Specimens

All specimen spillages must be dealt with immediately in order to reduce the risk of healthcare associated infection (HCAI) and all transport staff and clinical areas/staff should have suitable products, e.g. spill kits, Clinell spill mats and Clinell universal wipes, available to manage a spillage. PPE and products to decontaminate hands must also be available. Please refer specifically to the Cleaning and Decontamination of the Environment and Patient Equipment and the Blood and Body Spillages procedures which can be accessed through the IPC Manual/this link:


If the specimen request form becomes contaminated it must be discarded and a new form used. All waste from spillages must be discarded into the appropriate waste stream.

If a spillage occurs in transit and the location from where the specimen was collected from e.g. ward, clinic, is identifiable, then this incident must be reported to an appropriate person from the location so that another specimen may be obtained. The incident must also be reported using the Trust approved electronic reporting system.

If a spillage occurs in a member of staff’s personal car then it must be dealt with using appropriate products, as aforementioned. It may be that the vehicle warrants a professional clean and this must not be undertaken without prior manager approval.

3. DEFINITIONS

Bacillus Anthracis (anthrax) - a highly infectious and often fatal disease of herbivores, especially cattle and sheep, characterized by fever,
enlarged spleen, and swelling of the throat. Carnivores are relatively resistant. It is caused by the spore-forming bacterium *Bacillus anthracis* and can be transmitted to man by ingestion of contaminated meat, direct contact or inhalation of the spores.

**Brucella species (brucellosis)** - an infectious disease of cattle, goats, dogs, and pigs, caused by bacteria of the genus *Brucella* and transmittable to humans (e.g. by drinking contaminated milk): symptoms include fever, chills, and severe headache

**Chlamydia psittaci (psittacosis)** - a disease of birds, caused by the obligate intracellular parasite *Chlamydia psittaci*, that can be transmitted to man, in whom it produces inflammation of the lungs and pneumonia

**Escherichial coli 0157 (E.coli 0157)** - a genus of Gram-negative rodlike bacteria that are found in the intestines of humans and many animals, especially *E. coli*, which is sometimes pathogenic and is widely used in genetic research

**Shigella dysenteriae (dysentery)** - any rod-shaped Gram-negative bacterium of the genus *Shigella*

**Salmonella typhi and parathypi (typhoid and para-typhoid)** - any Gram-negative rod-shaped aerobic bacterium of the genus *Salmonella*, including *S. typhosa*, which causes typhoid fever, and many species (notably *S. enteritidis*) that cause food poisoning

**Mycobacterium Tuberculosis (Tuberculosis) and other mycobacterium** - a communicable disease caused by infection with the tubercle bacillus, most frequently affecting the lungs

**Human immunodeficiency virus (HIV)** - HIV is a virus which attacks the immune system, and weakens the ability to fight infections and disease

**Hepatitis B and C** - Hepatitis is a term used to describe inflammation (swelling) of the liver. Hepatitis B and C are types of virus that can infect and damage the liver

**Plasmodium falciparum (falciparum malaria)** - causes malaria

**Rabies Virus** - an acute infectious viral disease of the nervous system transmitted by the saliva of infected animals, especially dogs. It is characterized by excessive salivation, aversion to water, convulsions, and paralysis

**Transmissible Spongiform Encephalopathies** - a group of degenerative brain diseases

**Creutzfeldt-Jakob Disease** - a fatal slow-developing disease that affects the central nervous system, characterized by mental deterioration and
loss of coordination of the limbs

**SARS virus (severe acute respiratory syndrome)** - a severe viral infection of the lungs characterized by high fever, a dry cough, and breathing difficulties
**Lassa** - a serious viral disease of Central West Africa, characterized by high fever and muscular pains

**Ebola** virus a severe infectious disease characterized by fever, vomiting, and internal bleeding

**Pathogenic** - able to cause or produce disease

4. **RESPONSIBILITIES, ACCOUNTABILITIES AND DUTIES**

4.1 Refer to the home page, section 4, of the Infection Prevention and Control Policy

4.2 **Dangerous Goods Safety Advisor (DGSA)**

The main duties of the DGSA is to:

- Monitor compliance with the requirements governing the carriage of dangerous goods
- Advise the Chief Executive on the carriage of dangerous goods
- Prepare an annual report to the management on any activities in the carriage of dangerous goods

Requirements concerning the training of the vehicle crew should be in line with ADR 8.2 including attendance at a basic training course approved by the competent authority which is appropriate to their responsibilities and duties, this training includes staff who load or unload dangerous goods as part of their employment.

5. **LINKS TO ASSOCIATED POLICIES/DOCUMENTS**


http://www.hse.gov.uk/cdg/manual/

6. **REFERENCES/FURTHER READING**


Carriage of Dangerous Goods and use of Transportable Pressure Equipment (Amendment) Regulations 2011


Department of Health (2014) Management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence Advisory Committee on Dangerous Pathogens

Doncaster and Bassetlaw Hospitals NHS Foundation Trust 2008 www.dbh.nhs.uk/our-services/laboratory-services

European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) Regulations (2017)


The Control of Substances Hazardous to Health (amendment) Regulations 2004


The Management of Health and Safety at Work (Amendment) Regulations 2006


**7. APPENDICES**

To access the following Appendices please see IPC Manual homepage. [https://www.rdash.nhs.uk/46192/infection-prevention-and-control-manual/](https://www.rdash.nhs.uk/46192/infection-prevention-and-control-manual/)
Appendix 37 – Packaging of Specimens

Appendix 38 – Laboratory Handbook (Doncaster & Bassetlaw Teaching Hospitals foundation Trust)

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