Annex H

After Death

H.1 On the death of a patient defined in Table 4a in Part 4 of this guidance, the removal of the deceased from the ward, community setting or hospice, to the mortuary, should be carried out using normal infection control measures. It is recommended that the deceased is placed in a body bag, which should be labelled as High-Risk or Danger of Infection prior to transportation to the mortuary, in line with normal procedures for deceased patients where there is a known infection risk. An infection control notification sheet should be completed and given to the undertakers concerned with the deceased. (A specimen sheet, similar to that included in the Health Services Advisory Committee guidance on “Safe working and prevention of infection in the mortuary and post-mortem room” (second edition, 2202) (HMSO. ISBN 07176 2293 2) is included at the end of this Annex).

Post-mortem examination

H.2 Post-mortem examinations are required in order to confirm a clinical diagnosis and the cause of death in patients with suspected CJD, vCJD or any other form of human prion disease. However, such procedures have the potential to expose pathologists and anatomical pathology technologists (APTs) to tissues containing high levels of infectivity. The following paragraphs give advice on basic precautions for safe working. Further advice is given in the Health Services Advisory Committee publication "Safe working and the prevention of infection in the mortuary and post mortem room" (second edition, 2002). Specific information on neuropathological post-mortems in CJD cases has been published (1).

H.3 Only fully trained, competent staff should undertake any necessary post-mortem examination on patients defined in Table 4a. At least two people should be present during the examination: the pathologist assisted by one senior APT, with another APT (if required) to aid in the labelling of containers for tissue samples. Observers should be prohibited from entering the post-mortem room and should only observe via video or from a separate viewing gallery. APTs and others attending out of necessity should be fully trained, competent, understand all of the procedures for such post- mortem examinations, and made aware of the relevant history of the patient.

H.4 Post-mortem examinations on CJD cases can be undertaken in any mortuary subject to local risk assessment; however, if available, a “high-risk” post-mortem suite should be used. If a general post-mortem suite is used, the CJD post-mortem should not be performed while other post-mortems are in progress. Additionally, appropriate care should be taken to minimise contamination of the working environment.

H.5 In order to minimise contamination of the working environment, the examination may be carried out with the deceased in an open body bag with absorbent wadding alongside the body, to retain the body fluids. Examination of the brain is essential in a case of suspected CJD or vCJD, and absorbent wadding can be placed underneath

the head to contain the spread of blood when the scalp is reflected and CSF when the skull is opened. If preferred, the entire head can be enclosed within a large plastic bag during use of a bone saw to open the cranium. A hand saw or electric saw can be used, but if an electric saw is used then it should be a dedicated saw and only used for known or suspected CJD/vCJD. There should be no vacuum unit attached to the saw. The use of a bag to enclose the head during the opening of the skull and/or removal of the brain is an optional technique, but requires experience for optimal results. If a polythene bag is used, it should be fitted over the head and neck of the deceased, and a saw introduced through a hole in the bag, which may then be sealed with tape as necessary. The polythene bag (if used) and any soiled wadding should be incinerated after the post-mortem.

H.6 Any mortuary undertaking a CJD autopsy should be prepared to perform a full autopsy and to freeze samples of brain and other tissues for biochemical evaluation for PrP^{Sc}. If local facilities cannot or are not prepared to do this, or do not have the expertise or equipment to sample and store the frozen tissues, then the deceased should be moved to a regional centre where the required experience and facilities exist. Advice on autopsy protocols and arrangements for refund of any removal costs for CJD post-mortems are made through the National CJD Surveillance Unit – see below for further details:

National CJD Surveillance Unit,
University of Edinburgh
Western General Hospital
Edinburgh
EH4 2XU
UK

Tel: 0131 537 1980

Personal Protective Equipment

H.7 Disposable protective clothing should be worn during the post-mortem, including a theatre suit, gown or preferably a full disposable coverall, apron, hat, double gloves, and a full face visor or splash guard mask with visor which completely encloses the operator's head to protect the eyes and mouth. A full hood with battery-powered ventilation may also be suitable. Consideration should be given to the use of hand protection, such as armoured or cut-resistant gloves. Care should be taken when reconstructing in respect of needle stick injuries. The APT must not be rushed and be given sufficient time to perform this task safely.

H.8 Disposable mortuary instruments should be used wherever possible, and be incinerated after use. If it is not feasible to use all disposable instruments due to some not being available in a disposable format then, a set of dedicated instruments for use in *ALL definite, probable, possible* or *at risk* cases is recommended. Manual or electric saws may be used. Although the former do not create aerosols and are easier to decontaminate after use, they may present a greater risk of injury. If an electric saw is used, it is advisable to have a dedicated saw for the same reasons as

above. Instruments and mortuary working surfaces should be decontaminated following the guidance in Annex C. The deceased should be washed in accordance with local protocols.

H.9 In some instances, the relatives of the deceased may request that the body is dressed in clothes prior to viewing at the mortuary or at the funeral directors. This is best achieved at the end of the post-mortem, when the body can be dried and dressed and then placed in a clean body bag prior to viewing.

Anatomy and pathology teaching

H.10 Anatomy departments are advised not to accept for teaching or research purposes, bodies, body parts or organs from any patients defined in Table 4a. Departments should produce local policies to identify who is responsible for checking whether a potential donor may be in one of the defined categories. The extent of the checks necessary will vary with circumstances, but would normally include checking with those responsible for the donation and the medical staff involved in the care of the donor.

Undertakers and embalmers

H.11 The undertakers should receive an infection control notification sheet (see specimen form at the end of this Annex), appropriately completed, before handling the deceased. Concern about possible unknown CJD cases does not warrant a level of precaution for undertakers handling intact bodies other than those used generally for all work of this nature. Dressing and cosmetic work on deceased patients from this risk group may be undertaken if the usual precautions routinely used when dealing with the dead are observed.

H.12 When the diagnosis of CJD or vCJD is known or suspected it is advisable to avoid embalming procedures. When embalming is required by the family, because of the need to preserve the deceased's appearance for some time, or if the deceased is to be transported outside the UK, then it should be carried out in a facility that is fit for purpose and where the staff are trained, competent and qualified to do so. Single use needles should be used in embalming procedures. All embalmers should perform risk assessments of their premises to establish if they can facilitate embalming onsite, or if their company would need to refer any such request to a specialist establishment.

H.13 The embalming process involves replacing the deceased's blood with a fixative that often includes a dye in order to counter the paleness of the deceased's appearance. The process involves inserting a cannula into an artery (similar to a central line), usually the common carotid, and slowly perfusing the tissues with this fixative. An instrument known as a trocar is used to remove gas and excess fluids from the thoracic and abdominal cavities, prior to injecting fluid into them. A hypodermic syringe is used to inject any tissues that have received insufficient fluid from the arterial injection. A deceased patient who has undergone a post-mortem examination will be subject to a different procedure, which generally involves reopening the body, via the PM incisions, and locating and using the arteries inside the deceased.

Funerals and cremations

Viewing the deceased

H.14 Relatives, friends or carers of the deceased may wish to view or have some final contact with the deceased. Such viewing and possible superficial contact, such as touching or kissing, need not be discouraged even if a post-mortem has taken place. Body bags may be rolled down temporarily to allow superficial contact; there is no need to deny the relatives, friends or carers this opportunity if a post-mortem examination has been performed.

Return of tissues, blocks, slides etc.

H.15 If consent has been obtained for the retention of tissue for teaching, research and other scheduled purposes, none of the tissues retained following the post mortem examination are required to be disposed of. If this is not the case, following a request from relatives, friends, carers or a person in a Qualifying Relationship (2) decisions about whether tissues, blocks, slides etc of a patient defined in Table 4a can be returned, should be made on the basis of an assessment of the risks. Respectful disposal of tissue by the hospital may be preferable. Each establishment will have their chosen method of respectful disposal, which should be in keeping with the Human Tissue Authority's Code of Practice. If a risk assessment indicates that these items may be returned, this is best done *via* the funeral director. If return is not possible, families should have the reasons explained to them. Any retained items from such situations should only be returned, with information relating to the potential risks from the material (*e.g.* infection or chemical exposure), so that relatives can consider all the risks before selecting the most appropriate option for immediate respectful disposal. Care must be taken to ensure confidentiality in all dealings between funeral directors and a patient's relatives.

Environmental concerns

H.16 There is no need to discourage burial of a patient with known or suspected CJD or vCJD, and no special arrangements for burial are required. Similarly, there is no need for any extra precautions to be taken for cremation.

Transporting the deceased

H.17 No additional precautions are needed for transporting the body within the UK. If there is a need to transport the body internationally, it will be necessary to comply with the IATA Restricted Articles Regulations. Any additional requirements of the individual carrier should be discussed on a case-by-case basis. The deceased will normally be required to have been embalmed prior to transport and a Notification of Infection form, to replace the usual free from infection form, must also be produced.

Exhumation

H.18 A Home Office licence is required before exhumation can take place. Those involved with such a procedure should follow normal standard practice for exhumations.

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References

1. Ironside JW, Bell JE. The “high-risk” neuropathological autopsy in AIDS and Creutzfeldt-Jakob Disease: principles and practice. *Neuropathol Appl Neurobiol.* 1996; **22:**388-93.
2. Human Tissue Act 2004, Code of Practice on Consent, www.hta.gov.uk

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Specimen Infection Control Notification Sheet

Name of deceased: ……

Date and time of death: ……

Source hospital and ward: ……

The deceased's remains are a potential source of infection:

YES / UNKNOWN (see note 1 below) (ring as appropriate)

If **YES** (see note 2 below), the remains present an infectious hazard of transmission by: (ring as appropriate):

Inoculation **Aerosol** **Ingestion**

Instructions for handling remains (If **YES** above, tick as appropriate):

Body bagging	☐
Embalming presents high risk	☐

Signed: (Note 3) ……..

Print name ……..

On behalf of: ……..… (hospital / mortuary / General Practitioner)

Notes

Note 1: Not all infected patients display typical symptoms, therefore some infections may not have been identified at the time of death.

Note 2: In accordance with health and safety law and the information provided in the Health Services Advisory Committee guidance *Safe working and the prevention of infection in the mortuary and post-mortem room* (Second edition 2002).

Note 3:

- In hospital cases, the doctor certifying death, in consultation with ward nursing staff, is asked to sign this Notification sheet;
- Where a post-mortem examination has been undertaken, the pathologist is asked to sign this Notification Sheet;
- In non-hospital situations, the doctor certifying death is asked to sign this Notification Sheet.

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