

Infection Control Guidelines

for

Funeral Directors

by

the Community Infection Control Teams

of

**North and South Essex
Health Authorities**

Updated December 1999

*Last Reviewed Apr 2001 by Dr Millership
Next review Apr 2002*

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Contact List

Further information, advice and support is available from the Public Health Infection Control Team;

North Essex Public Health Department
Consultant in Communicable Disease Control 01376 302282

South Essex Public Health Department
Consultant in Communicable Disease Control 01277 755200

Community Infection Control Nurses

Mid Essex 01376 302281
pager 01245 443355 No. 5132

North East 01206 288537
pager 01245 443355 No. 5081

North West 01279 444455 ext. 4187
pager 01245 443355 No. 5091

South West Basildon, Brentwood and Thurrock
01277 755200
mobile 0374 218903

South East Castle Point, Rochford and Southend
01268 464532
mobile 0374 218858

Out of Hours

North Essex
Ring 01245 443355
and ask for the on-call Public Health Physician

South Essex
Contact the local hospital switchboard;
Basildon 01268 533911
or
Southend 01702 435555
and ask them to bleep the on-call Public Health Physician

Infection hazards of Human Cadavers

Introduction

There are some infectious conditions in a cadaver that may pose a hazard to the people who handle it. These guidelines have been written for Funeral Directors and Embalmers whose occupational contact with cadavers may put them at a slightly increased risk of contracting these conditions.

Within this document the term 'embalming' refers to both arterial and cavity embalming. Preparation of a body will also include one or all of the following, septal suturing (or equivalent), packing, washing and handling of the cadaver. The greatest risk in these procedures are from those which require the use of sharp instruments. With the potential risk of injury to the embalmer during preparation of the body.

At the end of this document there is a list of infections which have been categorised by degree of risk and, alongside this, an indication as to whether the body can, without risk be embalmed. It should be stressed, however, that the risk from all of these infections is minimal and the terms "Low", "Medium" and "High" have only been applied to determine comparative degrees of risk.

It is important to remember that risks can be minimised by following good basic infection control precautions. These precautions should be used in all instances as it may not be known if a given cadaver harbours an infection or not.

Infection and its Control

a) What is Infection?

Infection is a pathological process which involves the damaging of the body tissues by micro-organisms or by toxic substances produced by these organisms. It must be remembered the mere presence of micro-organisms in a site does not necessarily indicate that an infection is there. Infection is usually accompanied by signs and symptoms, for example pain, swelling, redness, production of pus and/or fever.

b) What Causes Infection?

Pathogenic micro-organisms cause infection. They may be classified as follows:

- Bacteria
- Viruses
- Pathogenic Fungi
- Protozoa
- Worms

c) The Spread of Infection

It is important to remember that the one feature that distinguishes infection from all other disease is that it can be spread, ie one person can 'catch' it from another.

Modes of Spread of Infection

The modes of spread of infection can be classified as follows:

- **Direct Contact.** Direct spread of infection occurs when one person infects the next by direct person to person contact.
- **Inhalation.** Inhalation spread occurs when microbes exhaled or discharged into the atmosphere by an infected person are inhaled by and infect another person.
- **Ingestion.** Infection by ingestion can occur when organisms capable of infecting the gastro-intestinal tract are ingested. When these organisms are excreted faecally by an infected person, faecal-oral spread is said to occur. Organisms may be carried on contaminated objects or hands or in food or drink.
- **Inoculation.** Inoculation infection can occur following a “sharps” injury when blood contaminated with, for example hepatitis B virus, is directly inoculated into the blood stream of the victim, thereby causing an infection.
- **Indirect.** Indirect spread of infection is said to occur when an intermediate carrier is involved in the spread of pathogenic microbes from the source of infection to another person.

Hands. The hands are probably the most important vehicles of cross-infection.

Air. Aerosol spread of infection occurs through inhalation. The major risk in cadavers is from tuberculosis if the bacteria is dispersed into the air when using high speed drills or pressurised equipment.

Vectors. Crawling and flying insects are an obvious example of intermediate carriers and need to be controlled. However, in the United Kingdom vectors would not present a dangerous threat of spreading infection.

Diseases in the living are a far greater hazard to health than diseases in the dead.

Universal Infection Control Precautions

For persons dealing with the recently deceased, regardless of which infectious agents may be present - observance of Control of Substances Hazardous to Health (COSHH)¹ procedures, the covering of cuts or lesions with waterproof dressings, careful cleansing of any injuries sustained during procedures and particularly the use of appropriate protective clothing for the procedure will greatly reduce the risk of acquiring infection.

Blood and body fluids may contain blood-borne viruses or bacterial pathogens that may present a risk to the Funeral Director or Embalmer. In known cases of infection the Funeral Director or Embalmer should be informed of any risk to him and what specific precautions he needs to take. This is the responsibility of the certifying doctor. If a body is removed without certification e.g. from a Nursing/Residential Home, under current practice, it remains the responsibility of the certifying doctor to ensure that any relevant information on infection risk is made known to the Funeral Director or Embalmer.

It is not always possible to know which bodies are infected and so there are certain precautions that must be taken when handling all bodies.

The process of embalming exposes the embalmer to much greater risk of contamination from body fluids than other procedures do.

Body fluids include: tissue fluid (e.g. fluid released when skin-slip occurs), semen, vaginal secretions, cerebro-spinal fluid, amniotic fluid, pericardial and pleural fluids, faeces, urine, vomit (purge), sweat and blood.

Handwashing

- Hands should be washed after all procedures, after delivery or collection of cadaver, after removing gloves, before handling any food and before leaving work for the day.
- If the skin is contaminated with blood or body fluid, this should be washed off immediately with soap and hot running water.

Protective Clothing - General

- Unpowdered Latex Gloves - should be worn for direct skin contact with a body, for contact with body fluids or for handling of clothing contaminated with body fluids. Gloves should be disposed of after each use.
- Plastic Aprons - long length plastic aprons should be worn wherever there is a risk of contamination by blood or body fluids.
- Protective Eyewear - should be worn if there is a risk of splashing of blood or body fluids onto the face.

Protective Clothing - Embalming

All usual clothing should be removed and replaced with:-

- overalls or basic suit which is either disposable or can be washed at a high temperature
- a full length gown
- wellington type, chemical proof, non-slip boots
- plastic apron, long enough to overlap boots
- protective waterproof sleeves
- heavy duty disposable gloves (latex gloves can be worn under heavy duty gloves for added protection)
- face/eye protection (goggles/protective spectacles/face visor)

After embalming is completed or at the end of the day a full shower or wash should be taken if desired or when necessary, if contamination with body/embalming fluids has occurred.

Broken Skin

- All cuts and abrasions should be covered with waterproof dressings.

Spillages

- These must be dealt with immediately.
- Disposable gloves and apron should be worn.
- All spills of blood, or body fluid visibly stained with blood, should be covered with NaDCC granules (eg Presept, Haztabs, Sanichlor).
- After two minutes this should be mopped up with disposable wipes and disposed of as clinical waste.
- The area should then be washed with detergent and hot water.

Waste Disposal

- All waste material from the preparation room or embalming theatre is potentially infective and should be dealt with as clinical waste taking into consideration the requirements of the Environmental Protection Act - The Controlled Waste Regulations² and the Special Waste Regulations³.

Staff who generate clinical waste have a duty of care to ensure it is correctly segregated, sealed and stored before collection for incineration. The collection of clinical waste should be arranged through a licensed disposal contractor.

- Anything which may be contaminated by body fluids eg gloves , aprons etc should be sealed and sent for incineration.

Cleaning of Instruments

All instruments used for embalming or preparing bodies for the funeral should be cleaned in warm water (if the water temperature is higher than “hand hot” it may fix protein onto instruments) and detergent to remove blood and other deposits then disinfected by boiling for 5 minutes or soaking in a phenolic disinfectant for 20 minutes. An autoclave, if available, provides excellent decontamination.

If equipment/instruments needs attention by an external contractor, decontamination should take place and a certificate of Decontamination should be completed.

Premises

Walls, ceilings, floors and ledges should be non-porous and easily washable where there is a possibility of fluid spillage. Surfaces which become contaminated should be cleaned immediately following use with hot water and detergent. The use of disinfectant is only necessary when surfaces are contaminated with potentially infectious materials such as faeces, pus or blood.

Protective waterproof and chemical proof gloves and plastic apron must be worn whilst handling disinfectants and when cleaning contaminated surfaces.

All body handling areas should have a wash-hand basin with liquid dispensed soap and disposable paper towels.

Vehicles

All removal vehicles should carry a supply of boots, overalls, gloves and body bags. Plus, equipment and materials to clear away and deal with any spillages.

The interior of the vehicle should be constructed so that it can be thoroughly washed and disinfected whenever it has become contaminated with body fluids.

Hearses and removal ambulances should be easily cleanable.

Removal shells must be constructed in a material that prevents leakage of body fluids and should be washed and disinfected after use.

All other equipment used in the removal of bodies should be of a washable material and washed and disinfected if visibly contaminated.

Sharps

- Particular care should be taken when handling sharp instruments, and appropriate protective clothing should be worn throughout.
- All sharps should be disposed of into a rigid sharps container conforming to BS7320.
- Needles should not be re-sheathed, bent or broken.
- Sharps bins should not be filled more than three-quarters full, should be closed securely and marked/labelled to identify its source before disposal by incineration.

Sharps Injuries/Splashing Injuries

This involves: Inoculation of blood by a needle, scalpel blade, suture needle or other sharp.

Contamination of broken skin with blood.

Blood splashes to mucous membrane e.g. eyes or mouth.

Contamination where clothes have been soaked by blood.

1. Gently encourage bleeding from the wound.
2. Wash the wound in soap and warm running water, but do not scrub the area.
3. Cover the wound with a dressing.
4. Skin, eyes or mouth: wash in plenty of water.
5. Ensure the sharp is disposed of safely.
6. Report the incident to immediate supervisor.
7. Attempt to identify source of the needle/sharp.
8. The person who sustained the wound should see their General Practitioner or attend the Accident and Emergency Department as soon as possible.

If the cadaver is identified as medium or high risk, or is infected with a disease in these categories seek medical advice immediately, by telephone, from the Consultant in Communicable Disease Control as in some circumstances e.g. exposure to HIV positive blood, treatment is best given within an hour.

9. Complete an accident report form, and record all information in the accident book.

Immunisation

All staff must ensure their immunisations are up to date. They should be protected against

- Tetanus. Primary immunisation should have been received as a child. A reinforcing dose ten years after the primary course and again ten years later maintains a satisfactory level of protection which will probably be life-long.
- Poliomyelitis. A full course should have been received as a child and, generally, no further boosters are required. No adult should remain unimmunised against poliomyelitis.

If a full course of either of these two vaccines was not received as a child you should consult your GP to complete the course.

- Tuberculosis. BCG should have been received in the early teenage years - there will usually be a scar on the upper arm to indicate this.
- Hepatitis B. It is recommended that all staff should receive a full course of immunisation against Hepatitis B and have their antibody level checked. It is the responsibility of the employer to ensure that their staff are protected.
- The British Institute of Embalmers advise Typhoid (monovalent) and Hepatitis A.

Confidentiality

Confidentiality should be observed throughout all aspects of funeral service and particularly when any infectious case is encountered.

Funeral directors are not currently given access to the certificate of the cause of death of bodies they prepare for burial or cremation.

However, they do need to know if an infection hazard exists so that they can decide whether embalming of the deceased is appropriate.

In cases where it is felt necessary to preserve confidentiality funeral directors may be told a cadaver is low, medium or high risk without giving a specific diagnosis. In this circumstance it is the responsibility of the certifying clinician (who should seek infection control advice if necessary) to ensure that the cadaver is correctly classified. Those refusing to disclose a diagnosis have a responsibility for ensuring that funeral directors are given sufficient information to protect themselves and their staff. Inaccurate or insufficient information may result in families being denied the right to view a body.

Denying relatives the opportunity to view their deceased can be a source of great distress. If there is any doubt as to the validity of the information given to a Funeral Director, from whatever source, it is strongly recommended that they seek advice from a member of the Communicable Disease Team.

Guidelines for viewing infected bodies:

Medium and Low Risk

In cases of a known or suspected contagious disease where relatives have expressed a wish to view/kiss the body, providing that there is no obvious risk of exposure to potentially infected body fluids; the head, shoulders and arms may be exposed (making the bodybag unobtrusive).

High Risk

There are only four diseases specified within the high risk categories : Anthrax, Plague, Rabies and Viral Haemorrhagic Fever. These remain extremely rare and are the only diseases for which cadavers should not be viewed.

There may be occasions, such as severe trauma, or decomposition of bodies, when Funeral Directors, in discussion with families advise against viewing.

Guidelines for Handling Cadavers with Infections

As well as using body bags for medium/high risk cases, some hospitals, as a continuation of universal precautions, have adopted the use of body bags for all deceased patients. Others are using body bags where a possibility of continued body fluid leakage is expected. Funeral directors should be routinely informed if the body poses an infectious risk. It should not be assumed by the funeral directors that the use of a body bag alone implies the cadaver is infected.

In the following table, the list of infections has been arranged alphabetically for ease of reference. There are three categories of procedures:-

- The majority of the infections are graded as “Low Risk” and, if universal precautions are applied, necessitate no further restrictions on handling and procedures.
- For the handful of infections that fall into the “Medium Risk” category, cadavers may be viewed and washed but embalming is not recommended.
- For those infections that are categorised as “High Risk”, cadavers should not be viewed, washed or embalmed.
- This table is meant as guidance only and any additional advice may be sought from the local **Consultant in Communicable Disease Control** or the **Community Infection Control Nurse**. (see appendix for contact details)

Table 1

Guidelines for Handling Cadavers with Infections
Adapted from Healing, Hoffman and Young (1995)⁴

Infections	Degree of Risk	Viewing	Washing/ dressing	Embalming
Anthrax	High (rare)	No	No	No
Atypical mycobacteria	Low	Yes	Yes	Yes
Chickenpox/shingles	Low	Yes	Yes	Yes
Cholera	Low	Yes	Yes	Yes
Cryptosporidiosis	Low	Yes	Yes	Yes
Dermatophytosis	Low	Yes	Yes	Yes
Diphtheria	Low	Yes	Yes	Yes
Dysentery	Low	Yes	Yes	Yes
Acute encephalitis	Low	Yes	Yes	Yes
Food Poisoning	Low	Yes	Yes	Yes
Haemorrhagic fever with renal syndrome	Low	Yes	Yes	Yes
Hepatitis A	Low	Yes	Yes	Yes
Hepatitis B	Medium	Yes	Yes	No
Hepatitis C	Medium	Yes	Yes	No
HIV/AIDS	Medium	Yes	Yes	No
Invasive Group A Streptococcal Infection	Medium	Yes	Yes	No
Legionellosis	Low	Yes	Yes	Yes
Leprosy	Low	Yes	Yes	Yes
Leptospirosis (Weil's Disease)	Low	Yes	Yes	Yes
Lyme Disease	Low	Yes	Yes	Yes
Malaria	Low	Yes	Yes	Yes
Measles	Low	Yes	Yes	Yes
Meningitis (except meningococcal)	Low	Yes	Yes	Yes
Meningococcal septicaemia (with or without meningitis)	Low	Yes	Yes	Yes
Methicillin resistant Staphylococcus aureus	Low	Yes	Yes	Yes
Mumps	Low	Yes	Yes	Yes
Ophthalmia neonatorum	Low	Yes	Yes	Yes
Orf	Low	Yes	Yes	Yes
Paratyphoid Fever	Low	Yes	Yes	Yes
Plague	High (rare)	No	No	No
Acute poliomyelitis	Low	Yes	Yes	Yes
Psittacosis	Low	Yes	Yes	Yes
Q Fever	Low	Yes	Yes	Yes
Rabies	High (rare)	No	No	No
Relapsing Fever	Low	Yes	Yes	Yes
Rubella	Low	Yes	Yes	Yes
Scarlet Fever	Low	Yes	Yes	Yes
Tetanus	Low	Yes	Yes	Yes
Transmissible spongiform encephalopathies (eg Creutzfeldt-Jakob disease)	Medium	Yes	Yes	No
Tuberculosis	Low	Yes	Yes	Yes
Typhoid Fever	Low	Yes	Yes	Yes
Typhus	Low	Yes	Yes	Yes
Viral Haemorrhagic Fever	High (rare)	No	No	No
Whooping Cough	Low	Yes	Yes	Yes
Yellow Fever	Medium	Yes	Yes	No

APPENDIX 1

A Brief Guide to Cleaning and Disinfecting Agents

Use	Preparation	Agent
Routine and Environmental Cleaning	As Supplied	General purpose detergent
Disinfection	<p>Cleaning powders containing hypochlorite are available and their use (following manufacturer's instructions) may well be easier than the alternative which is to make up a solution as follows:</p> <p>NaDCC tablets* or liquid bleach made up to 1,000 parts per million (ppm) in a solution of general purpose detergent and water. It is important to follow manufacturer's instructions.</p>	Hypochlorite detergent
Blood and body fluid spillages	NaDCC tablets* or granules, or liquid bleach, made up to 10,000 ppm in water.	Hypochlorite solution
Disinfection of hard surfaces and hands which have already been cleaned	70% Spray Wipes Bottle	Alcohols

* NaDCC = (Sodium dichloroisocyanurate eg Presept, Sanichlor)

Note on Hypochlorite - these should only be used on previously cleaned equipment.

The manufacturer's instructions should be carefully checked, but generally a dilution of 1 part commercial household bleach to 10 parts water is required.

Liquid bleach should be stored in a cool, dark, secure place and used within six months of purchase. The COSHH regulations apply to liquid bleach and NaDCC tablets. Fresh solutions of hypochlorite should be made up daily, as required, as these solutions rapidly become inactive.

References

1. Control of Substances Hazardous to Health Regulations (COSHH) (1988) Statutory Instrument No 1657. HMSO, London
2. Environmental Protection Act. The Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations (1991). Statutory Instrument No 1624. HMSO .
3. Environmental Protection Act. The Special Waste Regulations (1996). Statutory Instrument No 972. HMSO.
4. Healing TD, Hoffman PN , Young SEJ (1995). The infection hazards of human cadavers. Communicable Disease Report. Vol 5: No 5.