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# Mortuary Inspection Report

Inspection Date: 27/11/08

Inspection Team: CLS H&S Working Group and Martin Rollo of University Safety Services

## Observations and Recommendations

### 1. Manual Handling

- i. Mortuary staff explained that 25l drums of embalming fluid were lifted in and out of a cupboard that has a very low door and 3 wooden steps down to floor level inside. The 25l drums have to be lifted up and lowered down the steps. This is very bad manual handling practice. In addition, at the time of the inspection the light in the cupboard was not working and illumination from the open door was far from adequate. An alternative storage location for 25l drums must be identified. Use of the cupboard should be avoided, or at least limited to long term storage of light weight items. The light bulb/tube must be replaced. *Recommended timescale: as soon as possible*
- ii. Manual handling of cadavers was not observed during the inspection but, given the considerable weight of some of the bodies, there is significant potential for injury to those doing the lifting. The need for specialist training and/or additional mechanical aids should be carefully considered. A separate manual handling risk assessment should be carried out for this activity. *Recommended timescale: once future embalming technique is decided and as part of the Mortuary refurbishment.*

### 2. Personal Protective Equipment (PPE)

- i. No full face visors were available despite the fact that the risk assessments for embalming and use of phenol state that they are required to be worn. Embalmers are wearing safety glasses or their own spectacles. In the HSE guidance<sup>1</sup> (page 14, section 63) use of a visor which covers the entire face and neck is recommended. *Recommended timescale: as soon as possible*
- ii. The Tyvek suits currently being worn protect all parts of the body, apart from the face (see point 2i), but the soles of the integral booties are not slip resistant. Non-slip footwear is essential in the Mortuary environment. The HSE guidance recommends waterproof boots that extend to mid-calf level with dorsal reinforcement. Rather than an all in one suit, the guidance recommends a surgical shirt and trousers, a long sleeved surgical gown and a plastic apron. Note: when embalming is not in progress it would be acceptable to wear standard lab PPE, i.e. a lab coat, non-slip footwear and, depending upon the activity being undertaken, gloves and safety glasses. *Recommended timescale: as soon as possible.*
- iii. The respirators used by the staff during embalming and phenol decanting are Alpha Solway 9000 series, FFP3 rated, disposable, moulded face masks. The manufacturer does not recommend using the masks for protection against organic vapours but they do protect against dusts and mists. The staff have not been face-fit tested for this type of respirator but, in the case of the one individual who was wearing a mask at the time of the inspection, it was obvious that it did not fit. A respirator of a different design that gives protection against organic vapours had been previously supplied, specifically to use when decanting phenol (see point 2iv), but this was not in evidence. Rather than relying on individual workers to wear appropriate, properly fitted RPE it would be preferable to have adequate general and local exhaust ventilation take care of the chemical vapours (see point 3i) and employ a full face visor to guard against splashing, spraying and aerosols. *Recommended timescale: face-fit testing of appropriate RPE - as soon as possible; improvements to general and local ventilation – as part of the refurbishment.*
- iv. In 2006 a member of staff received a phenol burn while making up a 1% solution from an 80% 2.5l stock. The incident was investigated and a risk assessment drafted that clearly specifies the required controls. Some of these controls, e.g. use of a full face

visor, have not been implemented. More recently, use of a respirator to protect against inhalation of phenol vapour was recommended and a Mortuary worker was given a 3M 4729 reusable half mask to trial. Ideally, procedures involving phenol stocks of this volume should be carried out in a fume hood. Vapour concentrations at the neck of a stock bottle can be over 20ppm and are significantly higher in the event of a large volume spill. A fume hood will contain the vapours and any spilled liquid. In addition to this the glass visor gives splash protection. This would remove the need for the person performing the task to wear a visor and RPE and give protection not just to them but everyone in the vicinity. *Recommended timescale: use of visor and appropriate RPE - as soon as possible; installation of fume hood - as part of the refurbishment.*

### 3. Air Monitoring

- i. The chemical odour in the Mortuary is very strong and there were concerns that airborne concentrations of phenol and formaldehyde may be approaching their Work Place Exposure Limit (WEL; 2ppm for both). Martin Rollo took measurements using Draeger tubes and neither chemical could be detected, i.e. the levels were below the 0.5ppm lower limit of the measuring device. This would suggest that the ventilation in the Mortuary is adequate but any opportunity to further improve it, e.g. during future refurbishment, should be taken in order to reduce the workers exposure to as low as is reasonably practicable. In the mean time, it would be desirable check the flow rates of the embalming table extraction system and the hood that contains the pumping equipment against the commissioning data. The inspection team also recommends that vapour levels are checked at different points during the embalming procedure. (At the time of the inspection three embalmed and one partially embalmed cadaver were exposed but no work was in progress.) *Recommended timescale: additional measurements - as soon as possible; checks on LEV – wait until future embalming technique is decided. Note: measurements should be taken during the Thiel method trial for comparison with measurements taken during the current procedure.*

### 4. Clean, Dirty and Transition Zones

- i. Demarcation between dirty and clean areas is unclear and there is no properly equipped transition zone. The HSE guidance gives details on what the clean and dirty areas and transition zone should consist of (see page 7). The transition zone should contain washing, showering and changing facilities and pegs or lockers for storage of PPE. The locker room outside the secure door is an ideal location for a transition zone but major refurbishment is required. The possibility of relocating the lockers to the DSTT Drosophila room could be investigated. *Recommended timescale: can only be fully addressed during refurbishment but some improvements can be made now, e.g. signage to demarcate areas.*

### 5. Other

- i. No fire detectors are evident within the Mortuary area. An adequate fire detection system must be installed. *Recommended timescale: as part of the refurbishment.*
- ii. Several items of old, unused equipment are stored within the Mortuary ante-room and adjoining area. If there is no intention to reuse these items they should be disposed. *Recommended timescale: as soon as possible*
- iii. The old paper towel and soap dispensers in the Mortuary should be removed/replaced. (Currently, Tesco's own brand antibacterial soap is being used in preference to the supplied Labguard handwash.) *Recommended timescale: as soon as possible*
- iv. The sinks in the Mortuary and ante room require a thorough clean. *Recommended timescale: as soon as possible.*
- v. Instruments used on cadavers are washed by hand at the moment. The use of an automated washer/disinfector for cleaning/disinfection of instruments is recommended

in the HSE guidance (see page 24, section 114) and should be considered.  
*Recommended timescale: as part of the refurbishment.*

vi. No eyewash was available at the time of the inspection but this has since been rectified.

vii. Some items of portable electrical equipment require testing by the PAT Technician.

*Recommended timescale: as soon as possible.*

## **Conclusions**

- i. The condition of the facility is generally very poor, especially in comparison to other labs in CLS, and there is obvious failure to comply with the current HSE/HSC guidance on a number of counts. Only major refurbishment will enable us to achieve full compliance. This is currently being negotiated at senior management level.
- ii. The controls laid down in the existing risk assessments are not being fully implemented. A mechanism must be put in place to ensure risk assessments are effectively communicated to all staff and adequate instruction, training and supervision must be provided to ensure that the assessments are understood and followed. A meeting between the relevant individuals to discuss these issues should be arranged as soon as possible.

## **References**

1. "Safe working and prevention of infection in the mortuary and post-mortem room" (reprinted 2004) gives guidance that the HSE/HSC considers good practice. On page 23, section 108, this publication states: "Embalming procedures present similar exposure hazards to those during post-mortem examination. Consequently, standards of practice and facility provision need to be generally similar." This leaves no doubt that this guidance applies to the CAHId Mortuary Facility. The guidance is not compulsory but following it will ensure compliance with the law. HSE Inspectors will measure our standards against those defined in the guidance.