

35th NABBS CONFERENCE

5,6 & 7 September 2007

Cambridge

A LITTLE KNOWLEDGE IS A DANGEROUS THING!

Dr Martin Vinnell, School Safety Officer

There is a misunderstanding that Health and Safety has changed and become more prescriptive but regulations have not changed since 1974 – it is peoples' attitudes that have changed. Dr Vinnell gave a brief guide to legislation and pointed out a number of issues:

- COSHH – covers animals as well.
- Hazard group of pathogens:
 - Group 4: covering ebola, lassa fever, etc. This group also looks at the level of contagion in addition to the level of danger.
 - Group 3 – Hepatitis b, HIV
 - Group 2 – viral, genetically modification (commonly used)
 - Group 1 – everything else.

In the workplace – whenever a biological hazard group is being used regulations must be followed.

Deciding on Containment level – need to look at highest level of organism that can be in the sample and decide on containment from that. A simple rule of thumb is to look at the Hazard group and Containment level will generally be the same number.

Safety Cabinets do not relate to these Classifications.

Description of Containment Levels:

- CL1 easy to achieve (equivalent to a good kitchen with good materials and disinfectant)
- CL2 very little difference so is the optimum standard to be aimed at. Largest changes are in management, operation and training.
- CL3 need all the above plus negative air flow, specific space requirements. Always ask if this level of containment is necessary as the cost burden is much higher.

Microbiological safety cabinets – defined by British Standards. Class I, II, III are completely detached from Containment Level.

- Class I – extracted externally and takes air from room.
- Class II – inward flow of air then filtered and blown back down (either externally vented or recirculatory double hepa filtered which will cut down cost). Both must be fumigated for biological safety.
- Class III – glove boxes – look similar to isolators

- Isolators – protect samples, positive pressure isolators. So many different types they are difficult to identify.
- Cage changing units – no definition – local exhaust.
- Laminar flow hoods – blow air into faces. VLF and HLF (vertical and horizontal) – these are not safety equipment.

Bunsen burners must not be put into a Class II cabinet as the air pressure causes problems. If a request is made for a gas supply then this must be queried.

Guidance can be obtained from the Cambridge University website, also Edinburgh University and HSE Government website.

WELCOME TO CAMBRIDGE

Professor Sir Tom Blundell, Chair of the School of Biological Sciences

Professor Blundell explained how use of resources had changed over the years and that with the introduction of the Resource Allocation Model that the School was taking a more prominent role.

The School of Biological Sciences consists of:

- 9-Departments:
 - Biological:
 - Biochemistry
 - Experimental Psychology
 - Genetics
 - Plant Sciences
 - Zoology
 - Pre-Clinical:
 - Pathology
 - Pharmacology
 - Physiology, Development and Neuroscience
 - Clinical:
 - Veterinary Medicine
- 4-Institutes, including the:
 - Wellcome Trust/Cancer Research UK Gurdon Institute of Cancer and Developmental Biology
 - Wellcome Trust Centre for Stem Cell Research
 - Cambridge System Biology

- MRC Centre for Behavioural and Clinical Neuroscience
- 350-Principal Investigators
- Approximately 3,500 support staff

Over the past ten years an extensive rebuilding/refurbishment programme has taken place:

- 1997 the opening of the Sanger Building
- 2005 the opening of the Gurdon Building
- 2006 the refurbishment of a building to house the Wellcome Trust Centre for Stem Cell Research
- A new Plant Growth Facility at the Botanic Garden is to be built – the Gatsby Foundation Sainsbury Laboratory.

FUTURE:

- Looking at increasing efficiency in teaching as teaching is quite extensive especially in first two years.
- Looking at the quality of post graduate education especially cross departmental graduate programmes.
- Increasing efficiency: recently carried out a stores amalgamation, Departments now have floor technicians, workshops have been reduced to one for the School and a vehicle pool has been installed reducing vehicles across the School from 14 to 4.

CONSERVATION:

- The Vice Chancellor is particularly keen on this area of scientific research. Research is ongoing into Biofuels and Biomass.

RISK MANAGEMENT AND COPING WITH THE UNEXPECTED

Mrs Margaret Greeves, Assistant Director, Fitzwilliam Museum

Mrs Greeves gave background details of an incident that resulted in the breakage of three 18c Ching dynasty vases.

The incident raised the question of whether the museum was negligent although the vases had been in the same position for 40 years. The central vase weighted more than 45kg and all vases were attached to the windowsill with special pads.

A photograph of the man who had fallen onto the vases was taken by another visitor who had used his phone even though photography/mobile phone use is not allowed within the museum.

First aiders attended the man but he was found not to be badly hurt. Paramedics were called but he refused to go to hospital or his GP and he walked out. Police attended but they did not get involved.

The Museum did not go to the press but were approached by the Photographer asking whether they wanted the photograph – it was refused. As it happened the photograph was published in various newspapers and created a great deal of media interest in the museum:

- It became inspiration for art – a recreation of the scene, and debris, was made by a German artist.

- Excessive traffic on the web-server almost caused it to crash.
- A media backlash against the Museum was countered by public reaction asking the Museum not to change its way of displaying artefacts.
- Used as advertising by Barclays and M&S so not all bad publicity.

The incident resulted in risk assessments being carried out throughout whole of the Museum. Some displays were removed and others placed in glass cases.

The Press focussed on the value of items and them not being insured. Mrs Greeves pointed out that museum pieces are not insured as the premiums would not be affordable. Once an article becomes the property of a museum they are worthless because they are not to be re-sold. Items only need to insured when being transported.

Following the incident a journalist demanded full disclosure of damage to items over the past 10 years under the Freedom of Information Act. Events happened so quickly that all communication was verbal which proved to be helpful as little was available under FOI.

The good news is that the vases have been put back together and there is going to be an interactive sequence on the web-site overseeing this painstaking task. A local company has kindly offered to fund the reconstruction of the vases.

AGEISM – WHAT YOU NEED TO KNOW ABOUT IT

Mrs Bernadette O'Flynn, Employment Law Consultant

Mrs O'Flynn came to talk about the law in relation to age discrimination, i.e. treating a person less favourably than others on account of their age; this can be assumed by a person's looks rather than their chronological age. This law applies to everyone in employment or applying for a position.

There are four types of Discrimination:

- Direct and Indirect:

Both can be justified in certain circumstances: Health and Safety issues and training requirements, i.e. requiring a reasonable period of employment before retirement - if a person will reach normal retirement age within six months. Saving costs is not a justification for not employing or promoting people although if it is a business aim it MIGHT be acceptable.

- Victimisation and Discriminatory instructions:

Where someone is given an instruction which is unlawful and they refuse to carry it out. If you then treat them unfairly it is discriminatory.

Neither of these can be justified.

Other points to note are:

- Age harassment is similar to other types of harassment.
- Probationary periods must be treated carefully – need a good reason for doing this if not everyone is treated the same.
- Can refuse employment on Genuine Occupational requirement, e.g. a young actress is needed to play Juliet could refuse to employ an older person (not applicable for radio if a person has a young voice)

- Service related benefits and pay which tend to favour the older worker/long service: can discriminate on service as long as everyone gets the same and it is not dependent upon age. Seven year pay scale may need to be justified as employees should be able to reach top of the scale in five-years.
 - Old law: those aged over 65 could not go to an industrial tribunal hence they could easily be dismissed.
 - New Law: anyone can claim unfair dismissal whatever age and whatever reason for dismissal.
 - Ex-employees: protected from post-termination and harassment hence the requirement to be careful about writing references.
 - Retirement: age discrimination or dismissal? Compulsory Retirement only applies to someone at least 65.
 - Retirement: employer should write 6-12 months prior to 65th birthday (not earlier). The employee can write requesting delay until a specified time or age – this must be done at least three months prior to retirement. The Employer has a duty to consider the request – a meeting must be held. Once a decision has been made the employer does not have to give a reason if this is refused. The employee can appeal but again employer does not have to give a reason. Decisions must be given in writing and must be dated.
- If these procedures have not been done and the employee is retired at 65 then it could be classed as unfair dismissal and the employee awarded 8-weeks salary.
- Cannot use a sliding scale for holidays/salary. The Employer can use “up to 5 years” and “over 5 years”.

DEVELOPMENTS IN THE SCHOOL PhD PROGRAMME

Dr David Sargan, Director of Graduate Education

There are pressures on graduate education:

- Want to attract world's best students.
- Moves to Bologna Process is being standardised so that applicants need Masters before PhDs
- Increase amount of knowledge required before starting a PhD
- UK pressures:
 - Competition for students
 - Competition for funding
 - Completion within four years
 - Amount of industrial funding achieved in graduate student programmes
- Changes in training objectives:
 - More didactic training
 - Four year funding period becoming norm.
- Cambridge Graduate School in life sciences is the largest in country, benefiting from the local very rich science area which results in 1,500 registered PhD's of whom 300 work in external associated institutes. Cambridge does not have many taught masters courses the majority are PhD (93%).
- The Cambridge system, i.e. College based, is based on student/supervisory by one or more advisers.

- Most training is carried out at the bench
- Currently looking at the issue of inertia in graduate students and how to overcome it.

STEM CELL RESEARCH

Professor Austin Smith, Director of Wellcome Trust Centre for Stem Cell Research

Professor Smith expressed gratitude to the MRC, Wolfson and Wellcome Trust who made the refurbishment possible.

- Stem Cells can divide and re-generate, they read the environment and respond to demands from the body – this is called self-renewal. It is possible that all types of cancer are due to mutant stem cells.
- Only one cell can keep on regenerating: the Stem Cell. Transplantation of just one cell in a lethally irradiated mouse will cure it.
- In one month 1sq cm of skin can grow enough skin to cover a whole body. This technique has been used many times to save lives.
- Most stem cells are difficult to grow outside of the body. Stem cells in an adult body are restricted in what they do, i.e. skin will only ever make skin.
- Pluripotency – the ability of single cell to make every other type of cell. There is no reason for this to exist after birth but in an early embryo it does. In laboratory conditions these cells can live forever.

Once these cells are taken they can be maintained or stored and if replaced back into the embryo they will continue to generate and differentiate.

- Chimaera – an animal composed of cells from two (or more) embryos.
- Most common use for these cells is by allowing scientists to use human cells as opposed to animals.
- There is little evidence that pluripotent cells are available from adults or a late foetus. The embryonic stem cells are taken from the blastocyst: there is no body, heart or brain and it cannot develop without implantation. The blastocysts used to extract the stem cells are left over from failed IVF cells where the decision has been taken independently by the couple/practitioner.
- Once a stem cell line has been derived it must be deposited in the UK Stem Cell Bank so that it can be used by others.
- Embryonic stem cell research and tissue stem cell research go hand in hand and both types need to continue. Embryonic Stem Cells are able to make everything (but altogether and at the same time) this facility needs selection and control.

FUTURE:

- To make a pluripotent cell from an adult.
- Combine differentiated cells with pluripotent ones.
- Following recent success - now looking at retrograde re-programming of stem cells to make embryonic stem cells.

E-PROCUREMENT

Mr Jonathan Betts, Science Warehouse

Offers web-based trading and catalogue solutions.

- Began with scientific e-procurement but has now expanded to computing, travel, etc.
- Catalogue manager (hosts and distributes to various platforms)
- Focused on HE and public sector base
- Now covers the construction industry (selling finance software linked to catalogue)
- Won Best Overall Government e-procurement award.

Overview of the e-procurement systems shows that it provides a modular based system that integrates with various back office systems: Oracle, SAP, etc.

The system is guaranteed future proof – if financial system changes then Science Warehouse will change interfaces to allow processing to continue.

REFURBISHMENTS TO THE STEM CELL FACILITY

Mrs Lynn Kennedy, Administrator of the Wellcome Trust Centre for Stem Cell Research

The existing building was old fashioned, with poor lighting and facilities.

Refurbishment work began in 2005 at a cost of £11m. After previous experience of new build versus refurbishment a new build is easier.

This was a massive project – it required the stripping out of walls and plant.

Now that it is finished everyone is happy with the result – it functions well and looks good. The largest effect on budget was the Director's changes which resulted in an increase of £570K.

Points learned:

- It is never too early to get involved: with design team, main contractor and subcontractors.
- Identify those companies that are not acceptable.
- Involve interested parties as soon as possible.
- Problems after the refurbishment have identified some issues: locate autoclaves and glass washers in the basement in case of leakage.
- Record all changes to datasheets.
- Be aware of heat producing equipment and ensure enough cooling.