

**Issue 10  
December 2007**

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## Safety Management System Launch

The College's new Safety Management System (SMS) was launched at the November meeting of the College Management Board.

After a presentation by the College Safety Champion, Professor Steve Smith of the Faculty of Medicine, the Rector and Principals endorsed the new SMS (which includes the College Health and Safety Policy statement, the supporting organisational arrangements, and the overview of how the system should work). They recognised that the entire SMS would take at least two years to become fully implemented.

After this endorsement, the Director of Safety, Ian Gillett and David Forbes, the Director of Risk Management began presentations on the SMS to the various Faculty Management and Support Services committees. Following from these, the Heads of Departments and Divisions will present it to their Department / Divisional executive committees enabling Principal Investigators and Support Services staff to carry the message through to the staff, students, visitors and contractors.

In addition, Ian Gillett is visiting all new and existing Heads of Departments and Divisions, Campus Deans and other key individuals, to explain to them what their roles and responsibilities are and how they may implement the policy via the SMS.

A draft logo (opposite column) has been approved and this will head up a campaign which will begin at the December meeting of SHRUG, where there will be presentations from the new College Safety Champion, Professor John Wood of the Faculty of Engineering, and also from a representative from the HSE. In

addition, we hope that Stefan Hoyle, Faculty Safety Manager, will describe his experience of implementing the SMS in Life Sciences.

# iCARE

The new College safety campaign logo

## Access Control Scheme - Update

We reported on the proposal for a new College access control scheme in the June edition of Health and Safety Matters. This scheme is now ready to be rolled out across the College commencing with those areas warranting highly restricted access status. Initially, this will take the form of 'licensing' such areas – room 'owners' will be asked to complete a license application for their rooms to be awarded highly restricted access status and be signposted as such. The license application will request room details and information on emergency access and lone working arrangements. This should be submitted to the Safety Department on the pro-forma and the information will be held on a central database.

The scheme will obviously take some time to fully implement but once in place, should ensure better control and fewer incidents of unauthorised access, thus protecting the interests of the room owners in terms of safety, security and research sensitivity. An e-mail will be sent out to Departmental Safety Officers at the beginning of December – this will include an outline of the scheme and pro-forma license application.



**Access this Newsletter in electronic format at:**

<http://www3.imperial.ac.uk/occhealth/guidanceandadvice/newsletter>

## New help for travellers

Dr Alan Swann, Occupational Health Director

The Occupational Health Service can now prescribe antibiotics for self-treatment of traveller's diarrhoea for staff or students who will be working or studying overseas and who may have difficulty obtaining medical help when working in remote areas.

Diarrhoea is a common problem when visiting countries outside of Europe and America. Some studies have found frequencies of 50% or more. It is more common if living & eating on a low budget, and best avoided in the first place by being careful about food, water & hand hygiene. Not all cases are caused by bacteria and most often the diarrhoea settles without needing anything more than increasing fluid intake to prevent dehydration. However, if the diarrhoea becomes frequent or if other symptoms such as fever or malaise develop, a short course of an antibiotic will speed recovery.

If you will be travelling to a high risk country, and working in rural areas, we can give you a prescription for Ciprofloxacin antibiotic, along with guidance on when and how to use it. A course of tablets will cost c. £7. Staff travelling on College business should be able to claim this as an expense.

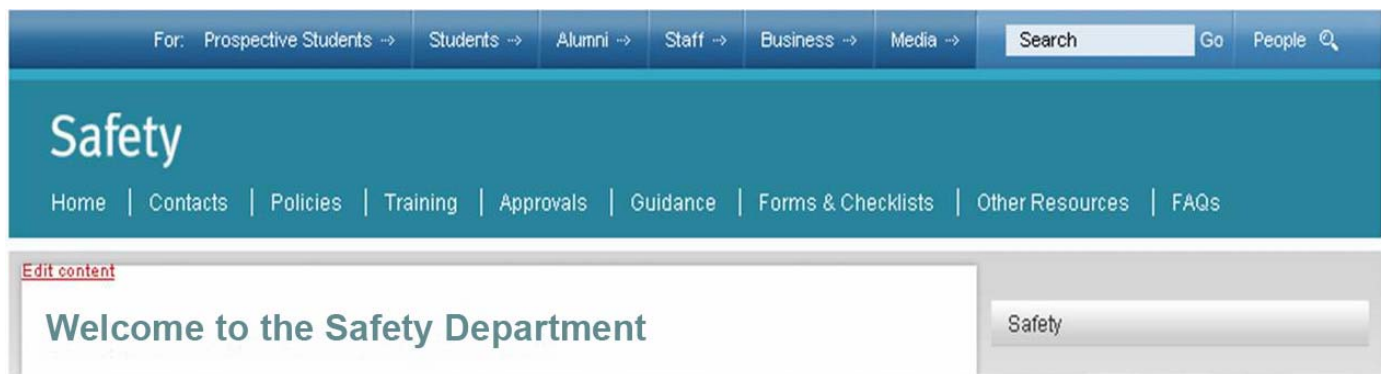
You should, if possible, get help from a doctor before starting treatment—diarrhoea can sometimes be an indicator of another illness that may require different treatment. You should always seek urgent medical

help if diarrhoea worsens despite treatment, or doesn't settle on return.

The OH Service will also now prescribe stand-by treatment for malaria for staff or students who will be working more than 24 hours from medical help— or 12 hours if travelling alone— in highest risk countries for falciparum Malaria: sub-Saharan Africa & south-east Asia. This is rescue treatment— primary prevention though avoiding insect bites and taking malaria prophylactic drugs is paramount— but as these preventative measures are not always 100% reliable and malaria can be rapidly fatal a supply of drugs for emergency treatment can be life-saving. Medical assessment will still be necessary— over 50% of self-diagnosed malaria turns out to be some other illness and severe infections will require more than just malaria tablets.

If you think you meet criteria for taking stand-by treatment, discuss this with one of the College's OH Advisers when attending your travel clinic appointment.

We have also developed new 2 hour training course on staying healthy abroad. The first course was run for researchers from the Department of Immunology who carry out field research for the International Aids Vaccine Initiative last month. Another course is planned for the new year.



The new College web design is scheduled for launch on 10 December. This, along with all the other College pages, means a change in appearance for the Safety Department pages. Aside from the obvious style change, the navigation tree will switch from the left to the right side of the page and the main headers will remain in a row across the top, though the drop-down lists will no longer appear when the cursor is rolled over each of the header links.

Perhaps the most noticeable difference concerns the new fixed page width—the main body of the page will be much narrower than before. This has created a potential problem with regard to the Safety Department pages that have interactive flowcharts uploaded such as the Off Site Working and Healthcare Waste pages. These charts need to remain large enough to be easily read and for the embedded links to be accessible. However, it is envisaged that the problem can be defeated by using a page template for these pages that does not include the navigation tree. Every effort will be made to ensure that the transition goes smoothly, however, if you notice problems with any of the Safety Department pages following the launch please bring them to the attention of John Luke ([j.luke@imperial.ac.uk](mailto:j.luke@imperial.ac.uk)).



## Having a gas.....carbon dioxide release scenarios

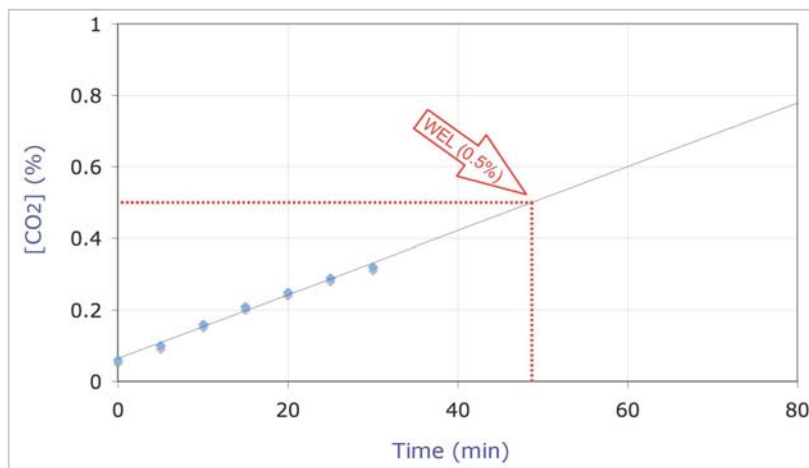
John Luke, Safety Adviser

From a safety perspective, carbon dioxide could be considered a gas with a split personality. It is present in the earth's atmosphere at low concentrations (albeit gradually increasing with global warming) and is also a product of human respiration. For transport purposes, the industrial liquefied gas is classified as non-flammable and non-toxic. This familiarity and benign description can disguise the fact that at high concentrations, the gas can be intoxicating - resulting in exhaustion, headache, visual disturbances, loss of consciousness and ultimately, respiratory failure. For this reason, Workplace Exposure Limits (WEL's) have been assigned to carbon dioxide and have been set at 5000 ppm (0.5%) long-term and 15000 ppm (1.5%) short-term. These levels must not be exceeded. The long-term WEL equates to an 8 hour working day and the short-term WEL to a short 15 minute exposure.

Recently, the Safety Department has undertaken experiments to try to evaluate two carbon dioxide release scenarios relevant to laboratory work.

### Cold room safety

An enquiry was received from a researcher concerned that human respiration in a poorly ventilated cold room would cause the carbon dioxide concentration to rise to a dangerous level. We therefore decided to put it to the test. An individual remained in a cold room for thirty minutes with the door closed whilst taking periodic readings with a suitably calibrated CO<sub>2</sub> gas analyser. The results were plotted on a graph and are shown below:



The zero time measurement of around 0.04% can be considered typical of the level of carbon dioxide found within buildings. The concentration proceeded to increase in a linear fashion approximately 0.05% every five minutes, reaching a concentration of 0.32% after thirty minutes. Extrapolation shows that it would have taken nearly fifty minutes to reach the long term WEL and several hours before the concentration reached a level where serious physiological effects could be expected. These are far longer periods than a worker would be expected to remain in the room with the door

closed, particularly as the room was essentially a storage room rather than a cold room designed for working in. Discomfort due to the low temperature would become apparent long before critical levels of carbon dioxide accumulated. These conclusions are of course, based only upon one experiment in one particular room and further experiments would be necessary to gather more data.

### Release of carbon dioxide into a Containment Level 3 laboratory

If the volume of a room and the number of air changes per hour are known, theoretical levels of carbon dioxide arising from a cylinder or tap leak can be calculated. This however, is not an exact science since it can be difficult to estimate the gas release rate arising from a leakage—the final piece of information required to complete the calculation. We therefore decided to conduct an experiment whereby the contents of a carbon dioxide cylinder were deliberately released into a CL3 laboratory and the resulting gas levels measured using the same gas analyser employed for the cold room experiment. As CL3 laboratories need to be kept at negative pressure, they benefit from beefy extract systems (approximately 21 air changes per hour in the case of the laboratory selected for the experiment), so we had always suspected that the air handling system would cope well with any accidental gas release whatever the extent.

The analyser was set up in the laboratory and the carbon dioxide valve and tap deliberately opened. After 10 minutes the concentration had barely risen above background. The position of the probe was changed to a different point in the laboratory. This had little effect on the gas concentration measured—an initial jump to 0.20% then settling back to around 0.06%. The position of the probe was changed a third time and a second gas tap opened to increase the flow into the room from two different points. The measured level still did not exceed 0.27%. The experiment was aborted at this point with the conclusion that the extract system was more than a match for the carbon dioxide released and whatever we tried, we could not raise the gas levels in the room to a serious concentration. Since the likelihood of an uncontrolled gas release coinciding with an extract failure is very remote, there is little evidence to suggest that additional control measures such as flow stoppers and gas monitors are necessary in CL3 laboratories that benefit from such high air exchange rates.

Further information on safe working with carbon dioxide may be found on the Safety Department website: <http://www3.imperial.ac.uk/safety/guidanceandadvice/gasesandcryo/co2>



## Substance abuse in the workplace

*Dougie Mason, Audit and Information Officer*



The UK has always been renowned for its capacity to drink large amounts of alcohol. In the last decade or so, there has also been a soaring social popularity of illegal substances such as cocaine and cannabis. With the festive period fast approaching and the various staff parties already planned, we look at the health and safety issues associated with such a culture.

Over recent years, there has been a greater realisation that alcohol and drug abuse is an important workplace health and safety issue. Traditionally, the subject has been met by a dismissive attitude based more on moral precepts than a concern for the health issues involved. However, today, it is more widely appreciated that substance abuse is harmful to both organisations and the workers themselves. The cost of alcohol related sickness absence alone is approximately £1.5 billion

Alcohol and drug abuse is an important health and safety issue as it impacts on both the employee and employer. For employees, substance abuse can result in poor health, injury, family problems, disciplinary action and possible job loss. In the case of employers, substance abuse can result in safety problems affecting the organisation, giving rise to increased costs and reduced productivity.

In the UK, the links between employment, drinking habits and alcohol problems appear to be particularly strong in women and young males. Recent studies have shown that problems associated with substance abuse

are not necessarily confined to those who have developed a dependency on drugs or alcohol

Although heavy drinkers have a greater risk of causing accidents in the workplace, their number is small. The relative risk of occasional drinkers causing a problem is lower. However, because their numbers are much greater, occasional drinkers account for the largest proportion of alcohol related problems in the workplace.



A raised alcohol level at work from a lunchtime drink, or from a binge the night before, can jeopardise both efficiency and safety e.g. increased likelihood of mistakes, errors of judgements and increased proneness to accidents. The after effects of alcohol, a hangover, can also impair both work attendance and performance, through lack of concentration and the inability to work at a normal pace.

If you are concerned that you or a colleague may have a problem then you can contact the College OH Service for confidential advice. Alternatively, you can contact Care First (details on page 7), which is a free and confidential counselling and advice service available to all Imperial employees.

The College has an alcohol policy which views alcohol or drug dependency as a health issue and, provided a person is willing to accept and follow help, will support them and allow time of for treatment, if necessary.

## Holiday Blues

*Lucy Wakefield, Occupational Health Adviser*

The advertisements for Christmas look like festive times of joy and closeness. However, research shows that approximately 68% of us are not looking forward to the holiday break.

For some people, the holidays bring worries about how they will manage to pay for those 'must have' children's Christmas presents and all the food and drink for the festive parties. Others may worry about how much alcohol they will drink or how they will cope with spending so much time with their partner during the festive period. Some people also feel lonely, sad and depressed as they are not used to spending so much time away from the office.

### Seek support.....

Imperial College Occupational Health Service provides independent and professional counselling, support and

information services for staff. Care First's services are confidential and no-one in your organisation will know you called - not even your manager or HR.

Care First Services include free professional debt counselling, support and information on stopping/reducing drinking levels and help with a range of other problems including relationships and family problems.

Calls to Care First are voluntary and confidential and there is no feedback on the consultation to College

## OH Staff Update

We welcome **Rachel West** as our new administrative assistant who has recently joined the department and will be responsible for the reception, medical student support and pre-employment screening.

## Carbon Monoxide: Silent Killer

Melanie Phillips, Occupational Health Manager

### What is carbon monoxide?

Carbon monoxide (CO) is a colourless, odourless, tasteless and poisonous gas produced by the incomplete burning of carbon-based fuels such as gas, oil, wood and coal. These fuels are normally safe to use, but when the fuel does not burn properly, excess CO is produced.

### Effects on the body

When CO is inhaled, it is absorbed into the body and binds to haemoglobin in the blood, thereby forming carboxyhaemoglobin. It could be said that haemoglobin has a 'preference' for CO over oxygen. Thereby, the oxygen carrying capacity of blood is reduced and vital organs and tissues are deprived of oxygen, making CO an asphyxiant.

### Carbon monoxide poisoning

Unfortunately, the symptoms of CO poisoning can appear very similar to the general malaise of other illnesses and include: tiredness, drowsiness, headaches, giddiness, nausea, vomiting, chest pain, breathlessness, stomach pains, erratic behaviour and visual problems. CO poisoning has been confused with food poisoning, viral infections, flu or simple tiredness.

### Heating appliances

In the home, the onset of colder weather sadly increases the number of incidents of CO poisoning as people switch on their heaters etc. On average, 20 deaths per year in the UK are due to CO poisoning in

the home. Signs that an appliance may not be working correctly include: yellow or orange, rather than blue flames (except where this is intentional for aesthetic reasons) soot or yellow/brown staining around or on an appliance, pilot light that frequently blows out or increased condensation inside windows.

All heating appliances should be maintained, but for gas appliances this is especially important. Safety checks should be made annually by a CORGI registered engineer. In rented accommodation this is the responsibility of the landlord who should be able to show a certificate to the tenant demonstrating that these checks have been made.

### Getting help.....

If you think there is a problem with an appliance in the home - switch it off and do not re-use until repairs have been made. You should shut off the gas supply if you are able, or call the Gas Emergency Freephone number (shown below); open all doors and windows to ventilate the room – do not sleep there; visit your GP urgently and tell them that you believe you may have suffered excess CO exposure. Always contact a CORGI registered installer to make repairs.



### Useful telephone numbers

HSE Gas Safety Advice Line  
0800 300 363

National Grid Gas Emergency Line (24 hours) 0800 111 999

More information on the HSE carbon monoxide awareness campaign can be found on page 7

## Working in the cold

Claire O'Brien, Senior Occupational Health Adviser

The winter temperatures in the south east of England never drop to Siberian levels, but that doesn't mean we're not at risk from injuries related to the cold. It is a good idea to keep an eye on the weather forecast so that you dress appropriately for the day.

It can be uncomfortable to wear a heavy coat on the underground so "layering" is a good option. Having an emergency layer at work wouldn't be considered as over the top as the weather can be very unpredictable.

In Britain, outdoor workers face cold conditions in winter and much of spring. However, it is not just those who work outside that experience problems because of cold temperatures. People who work next to open doorways or work in store rooms or workshops, which can be difficult to heat, can also experience problems. If the conditions are wet or windy, then we are all at risk.

Those that have to undertake emergency repairs outside must be protected from dangerous conditions through well planned and organised working proce-

dures. Shelter, welfare facilities and breaks: regular, frequent, warm-up breaks are essential, especially in windy or wet conditions. Warm water must be available to warm-up cold hands. There must also be facilities for changing, drying and storing protective clothing.

Facilities to access or make hot food and drinks must be provided. A hot drink warms up the body, a fast method of first aid for some one who is alert but suffering from the cold.

Provision of facilities to access or make hot food and drinks must be provided. A hot drink warms up the body: a fast method of first aid for some one who is alert but suffering from the cold.

If you are cold and need to carry out manual handling activities, it is recommended that you "warm up" first to get the muscles ready for work....you might prefer to do your star jumps and jogging in the spot away from the eyes of your colleagues!!

## Accidents

Rohini Gowtham, Accident Investigation Officer

### Working Safely with Cryostats

**Imperial College London**

**Safe use of cryostats**



Cryostat work can involve long periods of work manipulating specimens in a cold environment (-15°C to -35°C), repetitive movements to turn the wheel and adoption of poor posture. Additional hazards include exposure to very sharp blades and the handling of potentially pathogenic (unfixed) specimens

**Tips on reducing risk:**

1. Use an automated cryostat if possible
2. Use a fully adjustable chair with built-in footrest
3. Apply padding to the edge of the cryostat to reduce contact stress
4. Limit the time spent on cryostat work – no more than three hours per day and no more than one hour in a continuous work period. Take short breaks and do some gentle stretches
5. Avoid cryostat work on consecutive days
6. Report any arm or shoulder symptoms early so that you can be referred to Occupational Health for help
7. Report any instrument faults immediately
8. Wear a cotton fingerless glove liner or Kevlar glove if possible to reduce cold and risk of cuts – even if only on one hand
9. Avoid placing utensils such as forceps inside the cryostat – leave them outside when not in use. This will keep them at room temperature and reduce cold exposure to hands and fingers
10. Be aware of first aid and emergency arrangements in the event of cuts or cold burns – report accidents as soon as possible
11. Due to the risk of hand injury, avoid operating cryostats outside normal working hours
12. Decontaminate the instrument with a suitable disinfectant after use
13. Ensure that all users are trained in the use of the instrument and instructed on all the above safety points

October 2007

**Risk Reduction**  
Safety Department Notice

Cryostats / microtomes are used in a number of College departments for freezing and sectioning specimens. They present a range of hazards and these hazards have manifested themselves in a number of reported incidents in the College during the past year.

Perhaps the most obvious hazard and the one most commonly resulting in injury is contact with the very sharp blade—this has resulted in four reported accidents. There is also the attendant risk that the blade may be contaminated with something potentially hazardous. A further two accidents have involved cold burns sustained by skin contact with cold parts of the instrument or accessories. An unusual accident occurred when a contractor sustained an impact injury when working on a cryostat compressor and a valve on the pressure gauge apparatus became stuck causing the gauge to blow apart. But arguably the most serious hazard concerns the potential for repetitive strain type conditions developing through continual repetitive movements involved in manually turning the wheel. This type of incident has also been evident in the College and becomes a significant risk when personnel spend most of their working day engaged in this task without taking sufficient breaks. Ergonomic improvements to the workstation and changes to work style may improve the situation but the key action is to report symptoms early so that remedial measures can be taken before the condition deteriorates.

The Safety Department has produced a risk reduction notice that lists a number of control measures that can be put into place to combat the risks arising from cryostat hazards. These include: examining the potential to automate the process; managing the time spent on the manual aspects of the process; awareness of ergonomic issues; reporting of both instrument faults and any symptoms of ill health and wearing of suitable PPE where appropriate. The notice has been circulated to Departmental / Divisional Safety Officers and is also downloadable from the Safety Department website:

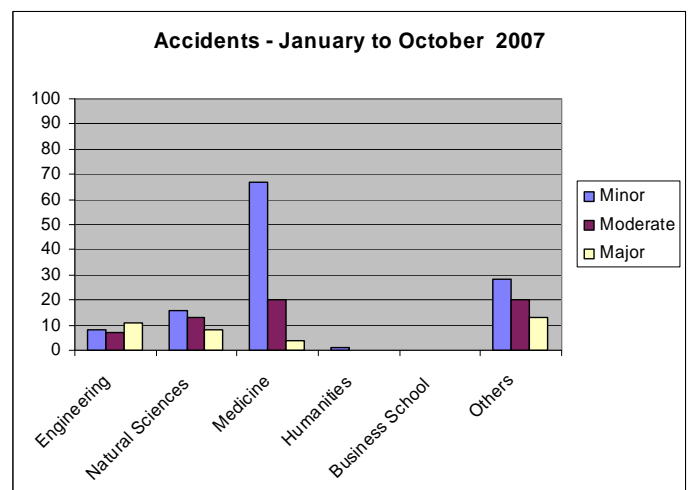
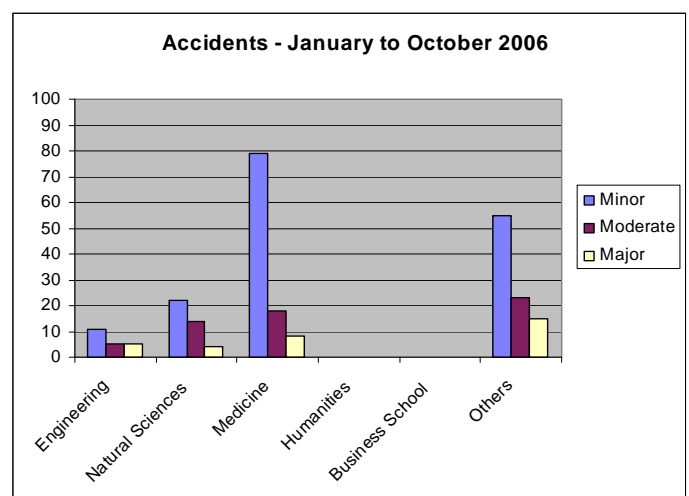
<http://www3.imperial.ac.uk/safety/otherresources/alerts>

If accidents and occupational ill health are to be avoided, it is important that the risks are understood not only by those staff employed in operating the instruments but also by their immediate line managers who are responsible for directing the activities of their staff.

### Accident Statistics

	Jan-Oct 2006	Jan-Oct 2007
<b>Total accidents reported to the Safety Department</b>	<b>259</b>	<b>216</b>
<b>Total accidents reported to the Health and Safety Executive in accordance with RIDDOR 1995</b>	<b>5</b>	<b>15</b>

### Comparison Graphs January to October 2006 vs. 2007



#### Accident rating:

Minor: No treatment required / First Aid.

Moderate: Visit to Occupational Health / GP / Health Centre or A&E.

Major: HSE reportable / Lost time (up to 3 days) / member of public taken to hospital for treatment.



### Frequently Asked Question:

#### **What is the legal minimum space requirement for an individual in the workplace?**

This is a popular question and is often asked when people feel hard done by—frequently in advance of, or following an office relocation.

Room dimensions and space requirements are covered by Regulation 10 of the Workplace (Health Safety and Welfare) Regulations, which states that *'every room where persons work shall have sufficient floor area, height and unoccupied space for the purposes of health, safety and welfare'*. No real clues there then.

The supporting Approved Code of Practice goes on to state that *'the total volume of the room when empty, divided by the number of people normally working in it should be at least 11 cubic metres'*. So now we have a figure to measure against.....or do we? People do not work in empty rooms. The ACoP also makes the point that *'workrooms should have enough free space to allow people to get to and from workstations and move within the room with ease'* and that the 11 cubic metres cited may not give *'sufficient unoccupied space'*. So the implication is that we can allocate people 11 cubic metres each providing they are standing in an empty room but once furniture starts getting added in, the figure becomes less useful as a gauge. It is not as clear cut as it first appears and therefore some judgement is clearly needed.

Perhaps the best way to look at the issue is to consider floor space rather than room volume. In most cases we can assume that the room height will be somewhere in the 2.4-3.0 metre range and the ACoP states anyway, that room heights exceeding 3.0 metres should be simply counted as 3.0 metres. So using the example quoted in the ACoP, a 2.4 metre high room leaves us with a floor area of 4.6 square metres per person e.g. 2.0 x 2.3 metres. Lets add some personal furniture—a desk (1.6 x 0.8 metres), a three drawer pedestal (0.5 x 0.6 metres) and a chair. The 4.6 square metres per person still seems reasonable with this amount of furniture—there should still be adequate space to comfortably manoeuvre in and out without crashing into things. So maybe the original 11 cubic metres per person guideline was a decent measure after all.....but only in circumstances where a modest amount of personal furniture is included in this space. Additional space would need to be made available for filing cabinets and any other 'communal' office furniture. There is also no escape from factoring in the configuration of the furniture in a given environment. Rows of back to back desks may require additional space for access and egress to prevent workers having to tuck themselves in every time someone needs to get past.

A reminder that time has now been called on the use of phenolic hycolin disinfectant. As the components have not been approved under the European Biocides Directive, we have known since the start of the year that the product had a limited lifetime. The HSE has now insisted that the College ceases using it with immediate effect. All users must ensure that existing stocks are removed from laboratories and suitable disposal arrangements made. The substance can be disposed via the chemical waste route at a minimal cost of approximately 80 pence per litre. Contact the FM Helpdesk to arrange disposal.

<http://www3.imperial.ac.uk/facilitiesmanagement/helpdesk/aboutus/>



### Carbon monoxide...are you aware?

As the winter is now setting in and gas fires and central heating systems kick into action, it is worth publicising the HSE guidance pages on carbon monoxide safety with regard to fuel burning appliances:

<http://www.hse.gov.uk/gas/domestic/co.htm?ebul=hsegen/08-oct-2007&cr=2>

#### The guidance includes:

- Recognising symptoms of carbon monoxide poisoning
- What preventative measures should be taken to minimise the risk of generating the gas
- What to do in the event that you suspect that your appliance may be spilling carbon monoxide

This information will obviously be relevant to any area in the College where boilers or other fuel burning appliances are present, including residences.

There are also a number of research applications that involve the deliberate use of carbon monoxide as a cylinder gas. Internal guidance on this subject may be found on the Safety Department website:

<http://www3.imperial.ac.uk/safety/guidanceandadvice/gasesandcryo>



FREEPHONE: 0800 174319

**are First**

Employee Assistance Solutions

## Contact Details

### Occupational Health

Level 4  
Sherfield Building  
South Kensington  
London SW7 2AZ

**PHONE:**

0207 594 9401

**FAX:**

0207 594 9407

**E-MAIL:**

[occhealth@imperial.ac.uk](mailto:occhealth@imperial.ac.uk)

**WEBSITE:**

[www.imperial.ac.uk/occhealth/](http://www.imperial.ac.uk/occhealth/)

### Safety Department

Level 5  
Sherfield Building  
South Kensington  
London SW7 2AZ

**PHONE:**

020 7594 9423

**FAX:**

020 7594 9424

**E-MAIL:**

[safety-dept@imperial.ac.uk](mailto:safety-dept@imperial.ac.uk)

**WEBSITE:**

[www3.imperial.ac.uk/safety](http://www3.imperial.ac.uk/safety)

If you have any comments or suggestions for inclusion in future Newsletters please contact the editors:

Dougie Mason  
Occupational Health  
[douglas.mason@imperial.ac.uk](mailto:douglas.mason@imperial.ac.uk)

or

John Luke  
Safety Department  
[j.luke@imperial.ac.uk](mailto:j.luke@imperial.ac.uk)

## Training

Christine Wright, Assistant Safety Director

### Workplace Competencies in Safety and Health

Is generic health and safety training appropriate for everyone or no-one? Or is it preferable to have programmes tailored to the requirements of the organisation and the people within it?

The starting point is an identification of training needs:

- *actively*—through safety inspections and audits, which can be used to indicate shortcomings and best practice in those areas.
- *reactively*—accidents, with or without injury, and work-related ill health can also indicate the need for training interventions.

The importance of consultation with senior and middle management, employees, their safety representatives and through safety committees should not be underestimated. Comparisons with similar institutions may be useful too.

The use of internal trainers is cost effective where appropriate expertise is available and presentation skills have been acquired—this has the obvious advantage of knowledge of operational requirements. Accreditation by awarding bodies can be sought which may be perceived as having greater credibility than in-house certification. External tutors may be used where specialist expertise is not available.

After training needs have been identified, aims and objectives should be established. A positive change in behaviour is

the goal. The aims are what the training programme hopes to achieve; objectives should provide structure for the sessions and assistance in detailed planning and setting of assessment procedures.

Effective training content ensures that general principles are made relevant and appropriate to the participants' workplaces. Course materials must be clear, concise, set at the correct level, jargon free and up to date, while embracing diversity and equality issues. The tutor should prepare lesson plans, a scheme of work and be aware of the learning styles of the cohort e.g. a practical and participative style will be appropriate for many technical topics. Accuracy of subject knowledge by the trainer is insufficient since engendering learner interest and engagement are essential.

Participation and feedback ensure a positive outcome. Care must be taken with the selection of appropriate learning aids and the use of a suitable location. Effective assessment can be formative, throughout the delivery of the training or summative at the end - possibly by the use of multi-choice questions. Evaluation should be used to develop the quality and effectiveness of the training provision.

Generic training may be used to develop basic competencies but the most effective training addresses specific risks and will ultimately improve the health and safety performance of the whole organisation.

## Training Schedule & Events

Below is a selection of forthcoming courses. The complete list for this term is too comprehensive to include here—please consult the training programme link for the entire range:  
<https://www3.imperial.ac.uk/safety/training/coursesindex.htm>

January 2008		February 2008	
Lifesavers Re-qualification (SK)	11th	Principles of Radiation Protection (SK)	6th
Biological Safety Foundation (SK)	15th	CIEH Level 2 Supervising Health & Safety (Hammersmith)	11, 18, 25th
Fire Safety (Hammersmith)	23rd	Gas Safety Modules 2 & 3 (SK)	20th
CIEH Level 2 Award in Health & Safety (SK)	28th	First Aid Lifesavers (SK)	12th
Introduction to Laser Safety (SK)	30th	Fire Safety (Charing Cross)	27th
Manual Handling for Users & Assessors (SK) <i>Occ. Health</i>	31st	Computer Safety for Users & Assessors (Hammersmith) <i>Occ. Health</i>	28th

**Next issue of Health and Safety Matters: March 2008**