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National Safety Symposium 2010
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Risk Assessment Routefinder

Occupational health toolkit

Welcome to the latest issue of *Connect*

Hello and welcome to the latest issue of *Connect*.

Every year, nearly 4,000 workers are killed by chronic obstructive pulmonary disease – a shocking statistic which has prompted IOSH to take part in a campaign to promote respiratory protection.

The 'Clean Air? – Take Care!' campaign, launched by the HSE and supported by IOSH, aims to reduce ill health through raising awareness of the correct selection, use and maintenance of respiratory protective equipment.

To tie in with the campaign, *Connect* publishes the first in a series of articles on [respiratory protection](#) and looks at what respiratory illnesses are and what we should be doing to protect our workforce.

IOSH is also involved in helping to roll out training on local exhaust ventilation (LEV). The HSE has created an interactive training programme for both suppliers and users. This free training will be available through your Branch and Group network early next year. Keep an eye out in the next few issues of *Connect* for more information.

With thousands of undergraduates ready to head back to university shortly, *Connect* talks to [Will Hudson](#), Deputy Director of Health and Safety at the University of Cambridge, about the hard work involved in preparing students for fieldwork trips to some of the most remote and dangerous regions of the world.

As well as features, *Connect* carries all the latest news, including why the TUC is getting hot under the collar over high heels and why British workers are risking their health by working through illness due to the fear of losing their jobs in the recession.

Remember, *Connect* has all the latest news and events going on in your Branch and Group together with the latest jobs in your area.

If you have any comments to make, or want to be included in one of our feature interviews, then please [drop me a line](#).

Thanks for reading.

Shaun Gibbons,
e-Editor, IOSH.

Guidance: what you need to know

In the first of two articles on respiratory protection, Connect looks at what respiratory illnesses are and what we should be doing to protect our workforce.

Respiratory protection

Headlines

- In 2006/07, **142,000** people in the UK had breathing or lung problems caused, or made worse, by work
- There were over 2,000 deaths due to mesothelioma and 4,000 deaths from asbestos-related cancer in 2006. Asbestosis, pneumoconiosis and silicosis accounted for a further 278 deaths
- Every year, 4,000 deaths are caused by chronic obstructive pulmonary disease as a result of airborne contaminants at work.

The problem

Airborne contaminants can include solids (dust, powder and fibres), gases and vapours (usually resulting from a chemical process), mists and aerosols (finely dispersed liquids) and fumes. Some contaminants can trigger an allergic reaction in the respiratory system.

Asbestos fibres cause illness by becoming embedded in the lungs. The fibres cause scarring of lung tissue, and can reduce the effectiveness of the lungs. In some cases, this can result in cancer.

Most current deaths, particularly those related to asbestos, are due to past exposure. However, surveys carried out by the [HSE](#) found that over a fifth of respondents believe they are still exposed to airborne contaminants at work, and over a fifth of employers admitted that their workers were at risk of breathing problems from airborne contaminants.

What are respiratory illnesses?

Respiratory illnesses may be chronic, with long-term discomfort. The effects are made worse by repeated and prolonged exposure over a working life. Chronic respiratory illnesses include:

- asthma
- chronic obstructive pulmonary disease (COPD)
- pneumoconiosis (coal dust)
- silicosis (quarry work, foundries or potteries)
- allergic alveolitis ('farmer's lung')
- allergic rhinitis (hayfever)
- byssinosis (cotton dust)

The main asbestos-related diseases are:

- asbestosis
- mesothelioma
- asbestos-related lung cancer
- diffuse pleural thickening

Respiratory failure can be acute, where workers die within a short time of being exposed to a respiratory irritant or poison. This [case](#) provides an example of a worker who died after only two exposures to isocyanates at work.

What should we be doing?

Prevention of both chronic and acute respiratory illnesses starts with the same question: how can contaminants be eliminated or reduced? The hierarchy of controls is:

- elimination and substitution
- isolation and ventilation
- provision, use and maintenance of respiratory protective equipment (RPE)
- training and information
- monitoring and health surveillance.

Elimination and substitution

Identify which substances are being used that can result in respiratory illnesses. Safety data sheets should warn you if a substance is a respiratory sensitizer. Be aware that common substances such as sawdust, hay and flour can create problems. [Factsheet 39](#) from the European Agency for Safety and Health at Work provides useful advice on where natural and chemical sensitizers may be found.

Having identified hazardous substances, can you stop using, or producing, the substances that cause problems? For example, if sawdust is created as a by-product of sawing timber, can you simply buy timber already sawn to size? Are there safer alternatives to the substances used? If so, substitute the safer substance for the more hazardous one. Can you use less of the substance?

Isolation and ventilation

If a significant risk remains, consider how the substance can be isolated. Enclosing a process which produces a respiratory sensitizer is a more effective safeguard than expecting every person who walks through an area to wear respiratory protection. Contaminants from the enclosed area must be safely ventilated and dealt with, for example with a filter to catch solid particles.

Where the work area cannot be completely enclosed, can you reduce the number of people exposed and the amount of time they're exposed for? Where some workers are still exposed, ventilation needs to be provided. The HSE has advice on [local exhaust ventilation](#) (LEV) at and through its free leaflet '[Clearing the air: a simple guide to buying and using local exhaust ventilation](#)'. You can also download [HSG 258 'Controlling airborne contaminants at work'](#) for free. Connect also carried an [article](#) about guidance on LEV.

Enclosures and ventilation systems must be maintained and checked to make sure they're working effectively. Care should also be taken in developing cleaning procedures so that cleaners aren't exposed to respiratory sensitizers more than necessary. Wet cleaning or vacuum cleaners, for example, should be used in preference to sweeping.

Provision, use and maintenance of RPE

Only when everything has been done to eliminate or reduce the hazard through substitution, isolation and ventilation should RPE be considered. Two main types of RPE exist: respirators (which use filters to remove contaminants from the air before the user breathes it) and breathing apparatus which supplies high-quality air to the wearer.

Selection of RPE should take account of:

Individual factors such as:

- Facial hair, glasses or contact lenses, medical conditions such as existing respiratory illnesses, high blood pressure, claustrophobia, heart disease, difficulties with hearing, and skin conditions such as eczema. Pregnancy and day-to-day coughs and colds may also influence the choice of RPE or whether it's appropriate for an individual to wear RPE at all.

Task factors such as:

- Duration, temperature, humidity, work rate (sedentary, moderate or heavy work), tools being used, other personal protective equipment (PPE) needed, requirements to see fine detail, to move around or to communicate, congestion in the work area.

Hazard factors such as:

- Risk phrase (R-phrase) from the safety data sheet, amount of substance used, dustiness (of solids such as pellets, grains or powder) or volatility of liquids.

Guidance to selecting RPE is provided in HSG 53 'Respiratory protective equipment at work: a practical guide' which can now be downloaded free from the [HSE website](#). The [COSHH Essentials R series](#) provides advice for RPE with different levels of protection.

RPE for dealing with asbestos is described in [EM6 'Asbestos essentials: PPE'](#).

Training and information

Where processes creating airborne contaminants have been isolated, staff need to know to keep away – for example, not using an area as a short cut where respiratory hazards may be present. Staff who need to enter the area should know what RPE is required, how to make pre-use checks, and how to wear it correctly. All workers should understand the procedure for reporting any respiratory problems which may be work-related, whether or not they've been identified as working in a hazardous area.

Monitoring and health surveillance

Air quality should be monitored to make sure levels of contaminants in the air stay below an acceptable level. Individuals can wear monitors or workplaces can be monitored directly. See [COSHH Essentials G409 'Exposure measurement'](#) for more details.

Health monitoring should involve an assessment of a worker's respiratory health before they start a potentially hazardous job. A suitably qualified health professional can help you decide how often the worker should be re-assessed. Records should be kept of all assessments, along with a description of the work undertaken.

If health problems are identified through regular checks, or if workers report symptoms between tests, action may be needed to remove the worker from the job until a further assessment is made.

[COSHH Essentials publications in the 'G4' series](#) describe health surveillance and monitoring.

The law

The main law concerning respiratory protection is COSHH (Control of Substances Hazardous to Health Regulations, 2002). Other regulations may be relevant depending on the work environment:

- The Control of Asbestos Regulations 2006
- The Control of Lead at Work Regulations 2002
- The Ionising Radiations Regulations 1999
- The Confined Spaces Regulations 1997

Requirements for health surveillance are set out in the Management of Health and Safety at Work Regulations 1999.

Summary

Elimination, substitution and engineering controls, such as isolation and ventilation, should be applied before resorting to RPE. All controls should be backed up with training, monitoring and health surveillance.

Links

[HSE COSHH area](#)
[HSE statistics on respiratory illnesses and asbestos related diseases](#)
[COSHH Essentials website](#)
[Health and Safety Laboratory training courses](#)
[BOHS occupational hygiene modules, in particular M103](#)

Spotlight: a lecture in safety

This year, the University of Cambridge celebrates its 800 year anniversary. *Connect* takes a stroll around the ancient campuses with Will Hudson, Deputy Director of Health and Safety, who talks about the hard work involved in preparing PhD students for fieldwork trips to

some of the most remote and dangerous regions of the world.

In 2007, the university published a lone working guide for students wanting to work and study abroad.

"In the guidance," explained Will, "is an example of a risk assessment from a student who wanted to conduct her fieldwork in northern India as part of her PhD.

"She would be a lone female in a remote area, so not only do you have to think about the hazards and risks associated with her being alone, but also the conditions she's going to be working in.

"The area she wanted to work in was steep mountainous terrain where she'd face hazards such as slipping and falling. She'd also have narrow mountain roads to contend with, so vehicle breakdown was something we needed to bear in mind. She also had to understand the country's weather, as being in mountains meant it could be adverse. Critically, she'd be living in an isolated area that would most likely be away from medical help and in an area where political tension was a very real threat."

In the guidance, students are told to visit the Foreign and Commonwealth Office's website which gives guidance to travellers on how to keep safe and healthy while abroad. Will also advises them to contact the appropriate foreign embassy to let them know they're planning on coming to the country and what they'll be doing while they're there.

"A few years ago, we had a student who wanted to go to the Democratic Republic of the Congo to work in an active volcanic region. Not only did he want to work in those conditions, but the country was also just coming out of a civil war.

"I arranged a meeting with the departmental safety officer and the head of department. We wanted to make sure that we had a robust health and safety plan in place so the individual could carry out the research.

"We liaised with Médecins Sans Frontières who were working in the area. They informed us of the conditions the person would be working and living in and how they'd be travelling in a UN Land Rover with UN officials. This helped assure us that the student would be safe."

Due to the vast number of students working abroad, when it comes to reviewing the risk assessments, Will and his team usually check ones where fieldwork has been carried out in higher risk countries to check that the policy was followed, the risk assessment was done properly and whether or not they had any feedback.

"Departments receive plenty of training on risk assessments to make sure everything is covered, but sometimes accidents happen simply because they're naturally unavoidable. We received three RIDDORs from a fieldwork trip to a coastal region in the North of England because some students slipped on some rocks."

Cambridge University's first college was built in the 13th century. Some buildings, such as the Old Cavendish buildings, were home to groundbreaking research work by eminent researchers such as the physicist Ernest Rutherford.

"In the 1920s and 1930s research was done very differently to how it is today so we have a legacy of contamination. A large amount has been removed, but we still monitor the levels regularly. By carrying out this regular monitoring it reassures staff and contractors who work in those areas.

"We also have a strict permit to work system. If anyone needs to do any invasive work in any of the buildings, even as simple as putting in a cable, then we monitor the area before, during and after. We have a technical team that can monitor the mercury levels down to parts per million. We also work closely with the Estate Management team, who support the fabric of the 320 buildings."

He added:

"Being a top university, we've got quite a reputation to uphold. People naturally expect the health and safety standards to be just as high as the teaching and research."

Factfile:

- The university was established in 1209
- There are around 11,000 undergraduates, 6,000 postgraduates and 8,500 staff at the university
- The first boat race between Cambridge and Oxford took place in 1829

Links:

[University of Cambridge](#)
[800 years of Cambridge University](#)
[Médecins Sans Frontières](#)

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