Current Trends in Occupational Exposure Setting in the UK and EEC

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As you all know, the world is changing fast and we live in a globalised world. Therefore, it is likely that many of the trends developing in the United Kingdom (UK) and elsewhere in the European Economic Community (EEC) will come your way in due course. The horizon for occupational health risk management is also changing fast and we as occupational hygienists have to react, respond, and help shape the exposure setting in the workplace.

Current Trends in Occupational Exposure Setting
First, I would like to explore the setting for occupational health risks management in the context of PESTLE. PESTLE is an acronym for - Political, Economical, Social, Technological, Legal, and Environmental factors. These factors are taken into account when conducting a strategic review to understand their influence and direction setting. PESTLE influences the setting for occupational health risk management and the practice of occupational hygiene. Its influence is much greater today than in the last 20 years and also accelerating at some pace.

- There are those in the **political** élite who would like to curb, in their words, the excessive "health and safety culture". They are actively seeking and introducing measures for achieving this goal. In the opposite direction, the trade union movement nowadays is not powerful enough to make them rethink, where necessary. Therefore, the business case for occupational health risk management has to come from professionals like us. We will have to make sound business case each time we seek control action and investment. In addition, we need to function like any other asset managers. In my view, we are asset risk managers because our decisions and recommendations impact on people's health and well-being, company investment decisions, operating costs, energy costs, profit margins, pay back period on an investment and the extent of Return On Investment (ROI) and so on. In other words, 21st century professional occupational hygienists also have to function as asset risk managers. If we do, our status and influence will go up (and hopefully so will the pay packet). In the words of Dr John Howard, Director of NIOSH, we will have to *"…become louder and bolder*".

- If we look at the **economic** angle, here too we find various influential groups that help to form opinion and culture and who are promoting the notion that health and safety "Red-Tape" is a barrier to economic growth, competitiveness, entrepreneurship, and the overall risk-taking business culture.

However, a calculation of the economic burden of mismanaged occupational health risks, tells a very different story. And it is one that costs billions of pounds to the economy and society. Many thousands of people suffer from injuries and long latency diseases including cancer. For us the counter challenge is to find ways for making business centred health risks management proposals.

- **Socially,** mischief-makers of all sorts as well as incompetent health and safety professionals are creating difficulties and obstacles for a positive health and safety culture. Their activities have helped to coin an increasingly pernicious phrase – *"elf 'n' safety"*. The HSE in the UK is spending lots of resource to turn around the negative impact of health and safety myths and barriers that are being created by

these people. Their efforts are only supporting those interests in society wanting to create a new social norm that regards responsible health and safety as a "killjoy".

Elsewhere, a vast majority of company annual reports do not provide adequate performance information on ill-health risk management. Thus, the true nature of the burden of ill health is masked from sight. And society, in general, is simply not making concerted demands to reduce these "slow deaths". On the other hand, when death is likely to be immediate, society is willing to spend a lot of money. This could be illustrated using a recent event that happened in Australia. When a lonely yachtsman was stuck in the sea, thousands of dollars were spent to locate him and thus save his life, his health, safety and wellbeing being paramount for the moment. So, if we as professionals want to help reduce the "slow-deaths" caused by exposure to hazardous agents at work, estimated to be around 12,000 deaths each year in the UK alone, we need somehow to make a 'slow death' just as important to society as an immediate one. To do this we have to embrace new ways and approaches.

- **Technological** innovations will continue to have significant effects in the way occupational hygiene is practised. I shall return to these in a little while.

- **Legal** activities are in overdrive, pursuing beneficial objectives albeit in an economically constrained operating environment. The EEC is looking at initiatives to reduce business burdens caused by health and safety requirements. In the UK, a significant number of H&S laws, approved codes of practice and guidance are being withdrawn, slimmed-down or merged to support smarter working. The UK government has introduced the Fees for Intervention Initiative (FFI). When an employer is found to be in "material breach" of health and safety law, HSE will charge £124 for every hour spent in helping the employer to make good the material breach. On the other hand, "low risk" premises will be exempt from proactive inspection by HSE and local authority inspectors. Nevertheless, HSE is taking more cases on health-related matters and courts are imposing significant fines on conviction.

In addition, legal and voluntary initiatives are being introduced to reduce the claim harvesting culture created by the "ambulance chasing" or no-win/no-fee claim firms. In addition, restrictions are being introduced to limit the number of civil claims on health and safety matters.

These and many more initiatives are becoming part-and-parcel of occupational health risk management in the UK and EEC, and we will increasingly have to operate and deliver with these in mind.

- **Environmental:** Our work, recommendations, and initiatives will have to take a significantly greater account of the environment, carbon footprint, energy costs, and third parties becoming exposed to hazardous agents.

In summary, the PESTLE environment is informing us that we need to take action to redefine our practice and competencies. I think this is necessary to ensure a long-term vitality of the profession, its status, and influence, as well as for reducing the occupational ill-health burden.

Exposure Setting, Professor John Howard, and future direction

A number of people have written or spoken about the future setting for occupational hygiene and elements of industrial hygiene teaching and practice. I would like to use two examples. Professor Howard, Director of US-NIOSH, thinks that seven trends are likely to define the future of occupational heath and hygiene. These are demography, employment patterns, discrimination, disability, governance, standards, and professionalism. He also considers that *"……to project into the 21st century, I'm not sure that the word 'industrial' has much meaning anymore*". This being the case, Dr Howard provides us with a clear indication that the profession has to evolve to deal with 'total worker health' as a concept and as a reality rather than those previously compartmentalised as simply industrial, wellbeing, lifestyle choices or environmental issues.

Exposure Setting, Professor John Howard, and future direction

Dr Howard is inviting the profession to consider a number of elements. These include:

- the need to broaden our traditional mission of preventing work-related diseases and injuries, with efforts to promote total worker health;
- ill health prevention through design, especially at source;
- taking advantage of new technologies and social media platforms;
- offering virtual meetings and training;

- reaching out to smaller workplaces with simple codified solutions;
- being more proficient in physics and engineering;
- developing globally harmonised practice standards.

He is also asking us to incorporate good leadership practices into our profession.

Exposure Setting, Professor Jerry Sherwood, and future direction
Professor Sherwood suggested that for the occupational hygiene profession to be relevant in 2020:

(i) it must adapt to the needs of the marketplace but must simultaneously shape the marketplace to be receptive of its services;

(ii) our profession must comprise those people who have the knowledge, ability, and the drive to meet the legitimate demands of the marketplace;

(iii) occupational hygienists should provide the unique and special skills required to establish economically optimum control solutions;

(iv) the profession should have an engineering knowledge.

In summary, to take a sporting analogy, we need to "up our game" for survival and status.

Exposure setting, Systems, and future direction
Now, I would like to look at the trends and exposure settings in another way. I would like to group the issues as follows:

- Simplification and Codification of occupational hygiene
- Exposure science Vs Control science in the practice of occupational hygiene
- Technology and its influence in our practice of occupational hygiene
- A case for total worker health
- Affective health risks management as another tool in our armoury
- Value-based occupational hygiene or delivering business and exposed worker benefits
- International Occupational Hygiene Association (IOHA) being a pivotal part in globalised occupational hygiene practice

Codification and Simplification of Occupational Hygiene
The later part of the 20th century saw a rapid growth in the development of intelligent, employer-friendly practical codification systems for work-related ill-health risk management (e.g. COSHH Essentials). Enforcement agencies and occupational hygienists developed these systems for a variety of reasons. These included:

- to support the changing landscape in the workplace from significantly large employers to small and medium-sized enterprises;
- to cope with the changing labour market and diversity. For example, subcontracting of labour by large organisations;
- to promote control by design and improve correct selection and use of PPE and work equipment;
- to help reduce the unacceptable burden resulting from workplace exposure to hazardous agents;
- to work more closely with stakeholders for leveraging improvements in exposure control
- to take advantage of technological capabilities and
- to help implement and enforce good practice standards.

Codified hygiene systems therefore started to become available for all aspects of health related hazards – chemicals, manual handling, noise, vibration, stress, wellbeing, and leadership.

Even now, the pace of codification is continuing to accelerate. Examples include the ART risk assessment tool for REACH, the Globally Harmonised System (GHS) for chemicals, RPE selector tool, and task-specific exposure control sheets.

Hazard banding is also being regarded as an alternative to substances specific OELs. Indeed, occupational hygienists are very much attached to OELs. But, here are some questions for you: is it reasonably practicable to set OELs for 30,000 chemicals? is it right to spend around $500,000 dollars to set a single OEL? are the OELs for big companies and occupational hygiene consultants or for rapidly growing SMEs? And is it right that we should

go on setting different numbers for the same chemical within the same country or across national boundaries (e.g. formaldehyde)?

Remember, OELs were developed before we had mature labelling systems, the GHS system, safety phrases, COSHH essentials, REACH and so on. I think the time is right to further develop hazard banding that can be used by H&S professionals as well by SMEs for effective management of all chemicals, not just the selected few.

International Standards on work equipment and machinery are continuing to impose built-in design requirements to eliminate noise, vibration, and manual handling issues at source.

There is no doubt that codification initiatives are providing risk management solutions for the rapidly growing SME and "jobbing" environment, where there is little or no occupational hygiene expertise. Codified solutions have helped non-occupational hygiene health and safety professionals and employers to largely "self-manage" ill-health risks in many situations and without resorting to occupational hygiene expertise.

Although some have expressed concerns about codification, in my view, codification approaches are not a threat to our profession but opportunities in a changing landscape. Codification requires knowledgeable hygienists with multidimensional qualities. It means we will have to continue to learn new skills and apply them to our work.

Exposure Science Vs Control Science

BOHS is proud that we have members who are world-renowned in workplace exposure science and our prestigious journal "Annals of Occupational Hygiene" carries significant number of research papers in this area. Together, they continue to influence national and international policymaking. However, it appears that our influence today on control science is much less when compared to twenty years ago.

As an example, It appears that we rely too much on stand-alone and unintegrated Local Exhaust Ventilation systems. These types of LEV do not deliver good control effectiveness because a significant reliance is placed on the worker to use it correctly. In addition, LEV, in general, wastes considerable amount of ever-costly energy and pushes out toxics into the wider environment.

It is estimated that UK plc spends over £400 million on respiratory protective equipment and chemical protective gloves. These are expensive solutions, contributing significantly to carbon footprint, and 'fail to danger' when used incorrectly. Surely, there should be room for looking at other ways of control. Remember, Professor Sherwood suggested that our profession should deliver economically optimal engineering design solutions.

Therefore, may be it is time for the professional bodies to revisit and assess education, examination and training systems, and policies to determine whether the current systems can help us to meet the demands of the 21st Century. In addition, we need to step up our partnerships with chemical engineers and process technologists for developing KISS based (keep it simple stupid) controls by design.

Control Science and marketing

On another dimension, there is a marketing problem. Many of the occupational hygiene public relations (PR) materials tend to use PPE of one sort or another as visual illustration to promote "what is occupational hygiene". This situation can create the wrong impression of our work, professionalism, and business value. Why should an employer pay large sums of money to an occupational hygienist for recommending a better respirator or an earmuff? Therefore, PR materials need to look for innovative approaches for portraying our profession, its work and value. PPE should be the last resort in PR materials, as in law.

Technological innovations and our practice

E-technology is becoming miniaturised and is being applied for personal and ambient sampling as well as for process operations management. These systems have fully automated multiple capabilities such as immediate action feedback via audio-visual warning systems, safe-auto-shutoffs and automated data transfer. These are vying with the traditional exposure monitoring and control methods.

Colour chemistry and biological and surface contamination monitoring techniques are becoming popular as visual aids for assessing control effectiveness and to modify behaviours at work.

Robotics based processes and built-in chemistry technologies are continuously being developed to improve quality, output and health and safety. These come on stream as a package.

The use of virtual learning, training and instruction facilities are growing at a rapid rate. These are now being designed to utilise modern technologies such as e-mails, mobile phones, i-pads and the likes.

We need to develop skills and expertise to use these innovations for making the worker and the workplace safer and businesses more profitable.

A case for total worker health

A recent report from the influential King's Fund, a health think-tank in the UK, says that four personal behaviours have a significant link to disease and early death: smoking; excess alcohol consumption; poor diet and a sedentary life style. It does not mention work-related ill health. However, all of us will agree that many workers who are susceptible to the areas identified will also become exposed to work-related hazardous agents and activities. The insult caused by work can accelerate disease development and death in this susceptible cohort. So the case for "total worker health" approach is becoming ever more important. Let me argue, "it is in our hands" to tackle this new dimension of occupational hygiene.

Our primary delivery function, devising and recommending sensible health risk management strategies, involves the worker in the equation. Therefore, we should take account of personal life styles, personal preferences, health issues, knowledge, attitudes, and culture into account. Here is an example: during the development of the London Olympic Park, my colleagues found that by simply providing good quality porridge breakfast at a reasonable cost it was possible to reduce accidents and improve efficiency and productivity. This is affective health risk management.

Here is another: when developing heat stress management strategies, we take account of physical and mental fitness of the worker, work rate, alcohol intake, health condition etc.

Similarly, we need to take account of total worker health when recommending methods of work in confined spaces, respirator selection, containment design, manual handling activities, work at height and so on.

It is clear that we need to integrate total worker health issues in our training programmes and control recommendations. In addition, total worker health issues should be made clear in our reports and risk assessments.

Affective occupational health Risks Management

The dictionary definition of the word "affective" means that it relates to moods, feelings, and attitudes. It is used in psychology to mean influence by or resulting from the emotions. Occupational hygienists work deals with people and therefore we have to think about culture, attitudes, behaviours, and emotions to achieve maximum results from our proposals and recommendations. It means, we need to take an active interest in affective health risk management. It is concerned with workers', their emotions, attitudes and behaviours. Affective health risk management is an important key to managing exposure in the workplace and it has to become part of our tool and practice. I would like to talk about, affective risk management very briefly. What I am going to say is my way of simplifying the complex socio-economic, behavioural, and psychological models in this area.

First, let me summarise why health risk controls go wrong. There are three causes: immediate, underlying and root causes. The contributory factors for these causes can be many. Let us look at them in a practical way. This may be summarised by the acronym "cabin has it". I use mnemonics to remember things and this is one of them. I have built in the significant elements representing the three causes of accidents and work related ill health into "CABIN HAS IT". These are:

Control failures, no controls, or inadequate control and/or functioning with negative culture, **A**ttitudes and **B**ehaviours; **I**naction at various levels of the organisation including the implementation of controls; **N**o procedures or monitoring systems; **H**uman errors, lack of **A**wareness, **S**upervision, **I**nstruction, and **T**raining.

Traditional approaches to occupational health risk management

Traditional approaches for managing health risks may take the route consisting of things like:

- It is company policy;
- It is a legal requirement
- We need to comply with legal limits
- Work Safe guidance says it and has to be done in a particular way
- Using threat of punishment/scolding and shaming
- Finding faults with workers
- Preparing big reports about our recommendations
- Not involving the workers in control solutions development, PPE and work equipment selection
- Bean-counting, such as the number of assessments that have been completed; number of sites or people monitored

- Perpetuating 'us and them' attitudes
- 'Death-by- PowerPoint' training
- Being reactive - waiting for an accident to happen; waiting for inspector or safety rep or an insurer to raise concerns. The list goes on.

Affective health Risk management
Whereas affective health risk management will take a different approach for dealing with "Cabin has it".

Affective health risks management places the emphasis on achieving positive and sustainable results by using elements such as:

- ✓ Knowing your audience
- ✓ Making people feel good
- ✓ Engaging all parties
- ✓ 'you said - we did' approach
- ✓ Delivering evidence-based solutions
- ✓ Using effective communication and training to suit the user requirements
- ✓ Emotionally engaging initiatives
- ✓ Being integral part of the task and business activity (weaving-in)
- ✓ Concentrate on positives
- ✓ Breakdown the 'us and them' barriers
- ✓ "Top Down" demonstration of commitment by actions
- ✓ Using health risk management as a business enabler
- ✓ Focusing on ROI, pay-back period etc
- ✓ Developing a learning legacy

I can tell you, the London Olympics project used these elements very successfully and saved millions.

Affective health risk management
Let me list examples of approaches that may be applied for practising affective health risk management. These are ways and means for developing and maintaining sustainability.

We have looked at some aspects of **Total Worker Health** already. Others aspects of Total Worker Health include dealing with personal lifestyle issues. For example, providing gym facilities and good quality canteen meals; getting rid of sugary stuff in vending machines and replacing it with good quality vitality products at discounted rate and so on.

Here is another idea represented by mnemonics "**CABE2MA"**: a business centred (see previous section) health and safety **C**ulture leading to positive **A**ttitudes, **B**ehaviours that touch the **E**motions of individuals to create **M**otivation and **A**ctions for consistent safe approaches. CABE2MA should begin right at the top and be practised day-in-day-out. It involves partnership, utilises messages and methods that get to the emotions of individuals. CABE2MA is about developing sustainability for good control practice. Although occupational hygiene practice is about protecting workers, in the past many of us have stayed away from affective safety management and concentrated simply on hardware. However, research after research on accidents, injuries and ill-health show that our practice has to invest more heavily on affective health risk management so that hardware such as LEV, PPE, manual handling devices, noise control measures etc really do the job for which they are designed.

We can use **SUSAN (S**afe and **U**n**S**afe **A**cts **N**oted) as a no-fault way for improving health and safety culture. It should help to increase cooperation and participation because control failures and control maintenance are addressed in a no fault environment with the aim of improving sustainability. The unsafe acts can be used as a motivator to improve performance so long as the SUSAN is introduced by consensus and by way of no-blame approach.

The time is right for us to use **IPPI (I**ll health **P**rotection and **P**erformance **I**ndicators**)**, developed in partnership, for affective health risk management. Examples include; using the traffic light system based risk management to reduce exposure to vibration, surface and coverall contamination and incorrect selection and use of PPE. These are not for "bean-counting", but for as real indicators of progress and sustainability.

We humans respond to **Recognition, Rewards and Celebration**. RRC and it application does not need extensive explanation. We are familiar with it from the time we started interacting with our mothers. I am sure you will

remember that sweet smile you gave your mother when she cuddled you and said hello (your mum told you about it, didn't she?). We should use Recognition, Reward, Celebration as another tool for maximising Total Worker Health, to improve culture, attitudes, behaviours, unsafe acts and ill health prevention and performance.

Value-based occupational hygiene
The business environment when occupational hygienists were able to justify expenditure and investment, simply in terms of it being ethical, moral and the right thing to do for reducing injury and illness, is becoming difficult. With an ever-increasing economic pressure and financial squeeze on budgets, the discipline is being forced to make business benefits arguments. I do not have time to explain this aspect in detail.

The American Industrial Hygiene Association has developed a model called IH Value Strategy Proposition. There are other models too. I invite you to look at the AIHA model and make use of it for making business benefits arguments.

IOHA
This is my final point on trends in exposure setting and occupational health risk management. I firmly believe IOHA has a very important role to play in occupational ill health risk management in this globalised world. Although IOHA is a young organisation, it has worked hard for occupational hygiene. IOHA may wish to consider developing globally applicable practice standards, competence, training, and entry requirements for the profession based on 21st Century challenges. These developments are likely to create a level playing field in a globalised economy.

Furthermore, IOHA may wish to consider increasing its PR and lobbying capabilities among G7, G8, G15 and G20 politicians, EU, ILO and other relevant agencies.

Exposure Setting
Colleagues, in this short time, we have looked at the trends in exposure setting for our profession through four different lenses: PESTLE, and those of Professors John Howard and Jerry Sherwood, and my own.

In summary, the current trends and settings are demanding we:

- establish business cases and deliver return on investment (ROI);
- function like any other asset risk managers;
- deliver risk management solutions using innovative approach like affective occupational health risk management.

It's in your hands
I would like to say thank you for listening.
And as for the future of occupational health risk management and the profession - "It's in your hands"

The future belongs to those willing to question current ways of doing business, abandon existing mindsets, and break the rules that bind business to the past. **Larry L Hansen**, in "Re-Braining" Corporate Safety and Health.

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