

British Occupational Hygiene Society INFORMATION PAPER 0121

What can Occupational Hygiene do to help better health protection in healthcare settings? The lesson from COVID-19

What is occupational hygiene?

The principal concerns of occupational hygiene are:

- multi- and inter-disciplinary scientific approaches to understanding health risks in the workplace; and
- effective practice in implementing conditions conducive to the protection of workplace health.

Chartered Occupational Hygienists are highly skilled scientists, educated to apply strategic, analytical and technical skills to the management of health risks across a wide range of workplace health exposures. They work in some of the most health-critical industries to control workplace health risks and exposures that may lead to acute and chronic disease. Often this involves the application of a whole range of measures, from engineering, through administration, to the proper selection and use of personal protective equipment.

In addition, their role requires them to set policy, educate and lead across complex organisations; to communicate, persuade and report, as well undertake front-line assessment and analysis field work in hostile and dangerous environments.

The milieu of the Occupational Hygienist is the workplace, including all of its parts, from the loading bay to the laboratory; the nuclear reactor to the rubbish bins. Understanding complexity and trade-offs and addressing novel and evolving scientific problems lie at the heart of their practice.

Often occupational hygienists are seen in their field role of undertaking scientific measurements and testing. However, this is a data collection element of a more complex strategic and scientific function. That function involves the analysis of data, the collation of scientific evidence, the management of risk and the negotiation of practical and business priorities so as to arrive at reductions in health risk exposure.

Occupational hygiene and healthcare

A healthcare setting is not different from other risk-based settings from an occupational hygiene perspective. The higher risk of exposure to the range and scale of human-borne biological agents is a predominant feature of this workplace, but that does not detract from the important contribution occupational hygiene can have on the protection of the healthcare workforce itself.

Healthcare employers have the same legal duties as other employers and healthcare workers have the same rights to a healthy workplace and to workplace health protection as other workers. The focus of the occupational hygienist is to look at the most effective controls to

reduce the risk to health of workers to as low as practicable for the working context. Their duty is to the worker, as the healthcare worker's duty is to the patient.

What can occupational hygiene offer to healthcare workers?

Healthcare professionals are trained with a focus on clinical risk. Occupational hygienists focus on the management of risk arising from workplace exposure. These are obviously different and complementary functions. A Chartered Occupational Hygienist will typically take a minimum of three years of postgraduate field experience and qualification including generalist and specialist practice to be qualified. This enables hygienists to address the complex range of risks within safety-critical industries such as healthcare.

Healthcare workers typically have training in epidemiology and potential causes of disease, as well as some measures to control risks to themselves in typical clinical settings. However, hospitals and other healthcare settings are highly complex workplaces. The health risks to staff can derive from exposures as varied as asbestos in older building, anaesthetic gases, cytotoxins, disinfectants, radiation and infections between staff or brought in by contractors.

Each of these exposures can be most effectively managed by applying a hierarchy of controls, which also enables the minimum interference with clinical practice and the maximum benefit for patient safety.

Medical training most often focuses on risk to patients and the ethical focus of healthcare often requires off-setting complex clinical risks in addressing patient need. Occupational hygienists are trained to collect data on exposures, analyse health risk to workers and to use engineering, management, design, scientific, technological and ergonomic mechanisms bespoke to the circumstances to reduce those risks to as low as reasonably practicable within the working context of the organisation. Again, these are complementary skill sets which can work together to better enable concerted action to build a healthy environment for workers and, consequently for patients.

The employment and worker health protection context is also one which involves judgments of legal duty. These can include equality duties, as well as duties to preserve and protect the health of staff. Occupational hygiene works closely in concert with regulatory duties, ranging from generic duties to highly technical areas, such as maximum levels of occupational exposure to toxic chemicals. This requires the ability to manage exposures in line with the law, latest scientific knowledge and best practice. This complementary and contrasting role is ethically and legally important.

How is risk to worker health managed in healthcare settings?

While legal duties such as COSHH apply to healthcare settings, unlike other industries, a formal safety management system is not a regulatory requirement. To this extent, healthcare differs in its management of risk to its employees from other safety-critical industries. Most other industries routinely mandate a safety management system to engage expertise in health risk management.

This creates a potential gap in the ability of a healthcare location to manage risk and learn from approaches taken by others. It has diminished the collective ability of healthcare to learn from success stories from across healthcare and from other safety-critical industries.

Occupational hygienists are often engaged across several different work environments and can bring that community of practice together without requiring the development of a complex bureaucratic infrastructure.

Part of the rationale for the absence of the requirement for formal safety management systems is the degree of inherent specialist risk management capability within the workforce.

Theoretically, the significant part of the occupational health risk in healthcare, that of infectious diseases, is managed because of the unique expertise of healthcare workplaces to manage infection control. Infection control is a specialist role within the healthcare professions.

However, the standards of training for infection control specialists, the availability of such specialists to fill roles and the operating practices of IPC specialists varies across healthcare workplaces. It has been observed by senior healthcare leaders that there has been a “gradual degradation in IPC capacity and standardisation of expertise within the NHS,”.

Crucial to the health protection capabilities of healthcare employers is the estate itself, ranging from infrastructure to design and layout. Health building notes (HBN) give best practice guidance on the design and planning of new healthcare buildings and on the adaptation or extension of existing facilities. Health technical memoranda (HTM) give comprehensive advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of healthcare.

However, challenges in managing health protection in the context of the existing estate and the degree to which HBN and HTM reflect the full range of health protections has been called into question by the experience of the pandemic. Expert input into the management and coordination of the complex range and hierarchy of engineering and administrative controls needed to protect staff against the full range of health risks is required.

In the design and layout of buildings, the consideration of configuring staff and service areas shows less reflection of concerns for maintaining good hygiene and, indeed, infection control amongst staff or through interface with external service providers.

Health protection in constrained and limited environments is an area of particular expertise of occupational hygiene professionals who have to find solutions for infection control and other exposure controls in some of the most complex, hostile and constrained environments in the world.

Healthcare workers are unused to deployment and operation of personal protective equipment (PPE), particularly items such as respirators. Occupational hygienists have been widely used in support of the NHS through the pandemic for activities such as fit testing and quality assurance. However, other dimensions such as managing the impact of long-term use, such as skin care and skin vulnerability, fatigue and psychological protection etc have not drawn on occupational hygiene expertise. Many industries routinely use respirators in highly challenging and safety critical conditions and there is still much expertise that can be shared to enable better health for healthcare workers.

Lessons from the pandemic so far

The Health Service Investigation Branch (HSIB) prospective report on nosocomial transmission of [COVID-19 transmission in hospitals – management of the risk](https://www.hsib.org.uk) (hsib.org.uk) highlights in their safety observations a number of areas which directly reflect the absence of expert knowledge that can be brought specifically by occupational hygiene expertise.

Neither that report, nor these observations, are intended as a criticism of the NHS, but to observe areas where staff cannot reasonably have been expected to be experts in providing healthcare to patients and focus on worker health protection. Indeed, there may be areas where there is an inherent ethical conflict (as highlighted by the Royal Colleges) and areas where it would not be reasonable to expect expertise in staff or management in the science of worker health protection.

Fundamental to the observations of the HSIB report was the absence of:

- fundamental understanding of the understanding and implementation of a hierarchy of controls to reduce infection transmission (Safety recommendation R/2020/98);
- an embedded risk management function, the absence of a community of practice to address the sort of generic novel challenge (Safety observation O/2020/080);
- the local ability to adapt the hierarchy of controls to the local limitations of estate (Safety observation O/2020/077)
- focus on staff as a source of infection transmission (Safety observation O/2020/075)
- understanding of non-clinical, staff and service areas as potential areas for nosocomial transmission (Safety observation O/2020/078)
- established capability to consistently manage the effective deployment of respirators (Safety observation O/2020/076)

These are each and all areas of the particular focus of occupational hygiene science and practice and where occupational hygienists can and should be deployed to enable better healthcare worker health protection.

Conclusion

Occupational hygienists are scientific specialists whose practice can positively influence the overall health protection of all staff in safety-critical settings such as healthcare. Their understanding of the complex interrelationships between engineering, management and technical controls across a range of exposure scenarios, whether highly specialist or generalised, makes a significant contribution to a healthier working environment. Their expertise in balancing risk, regulation and reality can reduce the burden on healthcare practitioners and managers and enable better focus on core clinical issues. There is a significant opportunity to enable a step change in the effectiveness of healthcare, the resilience of the workforce and the health and wellbeing of healthcare professionals - including those working in healthcare settings.

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The British Occupational Hygiene Society (BOHS) is a science-based, charitable body that provides information, expertise and guidance in the recognition, control, and management of workplace health risks. Founded in 1953, it is one of the largest occupational hygiene societies in Europe and the only professional society representing qualified occupational hygienists in the UK. BOHS provides internationally recognised qualifications, scientific conferences, and membership services, and has over 1400 members across 57 countries and numerous fields of worker health.

Media enquiries

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