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Malcolm R Sim

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Occupational health services—standards need to be underpinned by better research on effectiveness

Malcolm R Sim

The Faculty of Occupational Medicine (FOM) of the Royal College of Physicians has recently released a set of standards for accreditation of occupational health services in the UK. This is a welcome development and very timely, given the high profile of recent debate about service provision in other areas of the health sector in many countries, such as the USA and Australia. The FOM standards articulate the expectations of a safe, effective, quality occupational health service. It does this by outlining minimum requirements in six important areas of occupational health service provision; business probity, information governance, people, facilities and equipment, relationships with purchasers and relationships with workers. The recommended assessment process for accreditation is to include suitable evidence that eligibility criteria are met, based on customer satisfaction, an on-site assessment visit and self-assessment.

The release of these standards by the FOM brings into the spotlight questions regarding the effectiveness of the provision of worker healthcare and prevention activities by occupational health services; as raised in the 2008 review of the health of Britain’s working age population by Dame Carol Black. Such services should aim to prevent working age population by Dame Carol Black. This is important to ensure that scarce occupational health resources are utilised in the most effective way, but unfortunately research into occupational health service provision is often seen as the poor relation in the occupational health field. A review of evaluation research in occupational health services has found that most of the published studies at that time were descriptive, rather than evaluative, and methodological quality was not high. This review also found that at that time some areas of occupational health services, such as occupational rehabilitation, were hardly studied, while there was a lack of evidence for the effectiveness of the pre-employment examination. Subsequent research has found little difference between different methods of pre-employment examinations for non-hazardous occupations, whether by questionnaire or involving assessment by a medical practitioner.

Another example of where good evidence of effectiveness is lacking is hearing loss protection programs aimed at reducing the impact of noise induced hearing loss (NIHL), a longstanding occupational disease thought to be well controlled in developed countries. However, there is increasing evidence that despite decades of NIHL control, compensation claims are increasing, suggesting that past and current strategies to address this problem are not effective, inadequately implemented, or both. This conclusion is supported by a recent Cochrane review of interventions to prevent occupational NIHL, which concluded that there is contradictory evidence that workplace hearing loss protection programs are effective in the long term. While the prevention of NIHL is dependent on appropriate and enforced legislation and the suitable use of engineering controls, occupational health services are in the front line regarding the implementation of hearing loss prevention programs, including audiometric monitoring, and as concluded by the Cochrane review, there is a pressing need for better quality research into the long term effectiveness of such programs for this long established occupational disease.

Similar questions have been raised regarding the effectiveness of many other activities which may be undertaken by occupational health services. One published example of involved genetic screening to detect those thought to be at increased risk of work-related disorders. The case of genetic testing of 20 railway workers in the USA who submitted compensation claims for carpal tunnel syndrome highlighted many of the ethical, legal and scientific pitfalls when such testing is used inappropriately and isn’t based on a rigorous scientific evaluation of the screening tests. With the rise in the incidence of chronic non-communicable disease in the general community, such as diabetes and cardiovascular disease, workplace health promotion programs are becoming increasingly common activities for occupational health services. While modest benefits have been found in a recent systematic review of dietary behaviours, further research on workplace health promotion should be directed at interventions at multiple levels of the worksite environment.

Another important aspect of the evaluation of occupational health services is consumer satisfaction, as they are different in several respects from other types of health services, such as the perception of independence of occupational physicians and other OHS staff and visits often not being prompted by the workers themselves, but required by the workplace. Interestingly, this is an aspect of occupational health service provision highlighted by the newly released FOM standards as one of the important criteria for accreditation, but this will require valid ways to measure such satisfaction of occupational health services, as it has been shown that satisfaction levels can vary widely, depending on the methods used.

Since occupational health services are not available to at least 80% of workers worldwide, a major challenge is to undertake research to identify the most effective way to increase coverage and quality of such services. There are some particular challenges with occupational health service provision in newly industrialising countries, but there have been international developments to provide Basic Occupational Health Services (BOHS), based on different models of care from occupational health services operating in developed countries. Research to evaluate the effectiveness of BOHS is needed and a recent prospective study in China has indicated that BOHS integrated into the primary healthcare system can increase the coverage of occupational health services, such as health surveillance and awareness of occupational health hazards.
Unfortunately, despite these documented needs for research into the effectiveness of the activities of occupational health services, the quality of such studies is often poorer and has traditionally had a lower profile than other areas of occupational health research, such as aetiological or intervention research. In addition, there will be important future challenges in the provision of effective care to workers due to the ageing of the workforce and the rise in precarious employment. The release of the FOM standards for occupational health services, which addresses one of the recommendations of the Black Review, should help to raise the profile of this important aspect of occupational health practice and encourage the research community to design better studies to help evaluate occupational health services and to provide the data to underpin standards and accreditation.

Competing interests None.

REFERENCES

Air pollution, asthma and allergies in children

Joachim Heinrich

This issue of OEM reports the results of an ecological study (see page 293) using the GMAPS model to assess the association between the urban background concentration of PM10 (particulate matter below an aerodynamic diameter of 10 μm) for 304 communities in 55 countries and ISAAC Phase One data on symptoms for asthma, rhinoconjunctivitis and eczema. The aim of this study was to investigate the role of ambient particulate matter in explaining geographical variation in the prevalence of asthma, rhinoconjunctivitis and eczema using the data of approximately half a million children worldwide. As the authors note, there was a weak negative association between PM10 and the various outcomes. In 24 countries with more than one centre, most of the summary estimates for within-country associations were weakly positive. Anderson and colleagues conclude that urban background PM10 has little or no association with the prevalence of childhood asthma, rhinoconjunctivitis or eczema either within or between countries. The conclusions are generally supported by the cited study results and the authors provide an excellent discussion of several crucial issues of importance when interpreting the data from this ecological study.

Nevertheless, the conclusions have to be read very carefully in order to avoid misinterpretation of the results presented. This study refers only to background PM10, which is assumed to be homogeneously distributed across each of the study cities. However, it is known that PM10 and, in addition, other particulate matter components such as PM2.5 (particulate matter below 2.5 μm) and ultrafine particles (particulate matter below 0.1 μm), are in fact heterogeneously distributed across a community with concentrations varying by several magnitudes for ultrafine particles and by two- to fourfold for PM2.5 and PM10 in particular, when comparing regions close to busy roads with low emission areas. Thus, an exposure assessment limited to urban background likely captures individual exposures very imprecisely, especially when intra-community variability in exposures is larger than between-community variability. This limitation would be expected to reduce any ability to identify an exposure–response function.

There are subtle differences between the urban background measure of particulate matter used in the Anderson study and strategies employed to assess individual level exposures in a new generation of air pollution studies. Importantly, the objectives of the Anderson study were not to study the long-term effects of PM10 on new onset atopic diseases but to investigate the role of PM10 in explaining geographical variations in atopic disease prevalence. Indeed, the study failed to show that modelled city-wide background PM10 concentrations explain such geographical differences but the results should not be over-interpreted as negating all effects of PM10 exposures on atopic diseases. As with every ecological study, this study has the potential to be affected by uncontrolled confounding and the ecological fallacy. Specifically, this ecological study could only control for gross national product (GNP) per capita. It is questionable whether controlling for GNP is sufficient to address the huge differences in a number of important lifestyle and indoor factors, especially given the wide range of GNP reported for this study (ie, US$1480 to US$18 720). For example, ignoring such lifestyle factors would have been very misleading when drawing conclusions for East–West German comparison studies. These studies have shown a lower prevalence for asthma, hay fever and allergic sensitisation in East compared to West Germans, although ambient air pollution levels for particulate matter were

Correspondence to Dr Joachim Heinrich, Helmholtz Zentrum München, German Research Center for Environmental Health, Institute of Epidemiology, Ingolstädter Landstraße 1, 85764 Neuherberg, Germany; joachim.heinrich@helmholtz-muenchen.de