

Risk assesment in health care

1. Introduction

The aim of risk assessment is to establish an association between hazards and health outcomes, and to evaluate the risk to health from exposure to a hazard (Cox et al., 2000). According to WHO (2005), human health risk assessment is "the process that evaluates the nature and likelihood of adverse human health effects from exposure to one or more stressors".

The health care sector is one of the largest sectors in Europe. Approximately 10% of workers in the European Union are employed in the health and welfare sector, with a significant proportion employed in hospitals. Other workplaces include nursing homes, special homes, medical practices, and other health-related activities (e.g. blood banks and medical laboratories).

This article outlines the risk factors specific to the health care sector and describes practical steps of risk assessment. Risk assessment is a key to preventing and reducing health care workers exposure to work hazards.

2. Working environment problems in the health care sector

Partly as a result of unfavourable working conditions the European Union is and will be facing a shortage of labour in both health and social care in the coming years, making efforts to combat work-related ill health, absenteeism and early retirement in the sector a priority.

The health care sector is complex and covers a variety of professions and work places facing different occupational health hazards and associated health problems.

Health care workers may be exposed to needle stick injuries, back injuries, latex allergy, violence, and stress, and in an attempt to systematize this large number of individual hazards a classification system has been suggested. Broadly, hazards are classified as biological (e.g. viruses), chemical (e.g. cytostatics), ergonomic (e.g. patient handling), organisational (e.g. shift work) or psychosocial including work related violence (Froneberg, 2006).

Chemical and biological hazards may have serious implications for the individuals exposed and a wealth of quality-ensured guidance and information for health care workers is available on the internet (e.g. NIOSH



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topic pages on biological and chemical hazards –
<http://www.cdc.gov/niosh/topics/healthcare/>)

Psychosocial and ergonomic factors, however, constitute the main problem. As reflected in the illness and injury statistics, the number of workers affected by these factors, and their impact on worker health and the sector as a whole is high. Compared with an average rate of all industries the health and social sector has a higher prevalence rate of work - related illnesses, mainly caused by high levels of musculoskeletal conditions and stress, depression or anxiety (www.hse.gov.uk/statistics/industry/healthservices.htm).

3. Psychological and ergonomic risk factors in health care

3.1 Psychological risk factors

Psychosocial hazards or risk factors are “those aspects of work design and the organisation and management of work, and their social and environmental contexts, which have the potential for causing psychological or physical harm” (Cox & Griffiths, 1996). Work-related psychosocial risk factors include such aspects as role in organisation, interpersonal relationships at work, work schedule, work stress, low job control, job demands, bullying, violence, poor organisational justice and poor teamwork. All occupational groups in the sector may face hazards.

These hazards may affect both physical and psychosocial health. They can affect health either directly (physical pathway) or indirectly (psychological, stress-mediated pathway) (Cox et al., 2000).

Work stress is a common problem in the health care sector. According to a survey of the International Hospital Outcomes Research Consortium 1998-1999, in England 36.2% of the employees in the health care sector suffer from major burnout (www.sozialnetz-hessen.de/ca/wn/rqj/). Chronic work stress is related with increased health problems, in particular with heart disease (Hemingway & Marmot, 1999). Prolonged stress at work may also contribute to psychiatric disorders, including depression (Kivimäki et al., 2003).

Workplace bullying is a serious problem in health care organisations. Bullying in health care organisations has been associated with burnout, anxiety, depression, job dissatisfaction, sickness absence, and the propensity to leave. This can cause high costs for organisations and for the whole society.



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Violence by members of the public has also been shown to be prevalent in health care work. Violence at work applies to incidents in which an employee is abused, threatened or assaulted during their normal work duties. This behaviour can come from patients, clients, visitors, members of the public and fellow employees. Certain activities place workers at higher risk of assault or aggression (e.g. emergency areas, mental health services). Violence and aggression not only causes injury and distress but it also leads to increased sickness absence and low morale, and affects treatment of patients. In the UK, in 2000-2001, there were some 84,000 reported incidents of violence and aggression against National Health Service (NHS) staff. In 2001-2002, there were over 95,000 reported incidents (13% increase) (NHS, 2003).

Organisational factors and relationships with colleagues can also be important hazards. Factors such as organisational injustice, poor teamwork, poor management, work in isolation, lack of social support, downsizing and insufficient resources have been found to contribute to physical and mental ill health and sickness absence among health care workers.

Finally, there are important psychological hazards that are unique to this sector. These can include confrontation with pain and dealing with dying people, emergencies, exposure to traumatic situations, complaints and litigation.

Unsuccessful management of psychosocial risk factors may have important consequences not only for the health care workers, but also for the patients and the quality of service provided. The effect on the individual employee depends on the hazard they have been exposed to. However, the effects depend also on the organisational (screening, reporting, social support etc) resources available to support employees and prevent the occurrence of psychosocial problems.

3.2 Ergonomic risk factors

Ergonomic hazards and associated musculoskeletal problems have been described as the leading occupational health problem affecting the nursing workforce (de Castro, 2004). Health care workers consistently rank among the top occupations with disabling back injuries primarily from manual handling of patients.

Nursing aides, orderlies and attendants are the second and registered nurses - the sixth on a top ten list of at risk occupations for strains and sprains that include truck drivers (the first), labourers (the third) and construction workers (the seventh) (Bureau of Labour Statistics, 2002). The risk for back injury due to manual patient handling affects all specialities. A large Swedish



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study (Engkvist et al., 2001) found that regular patient handling and the absence of assistive devices were associated with back injuries among nursing personnel.

Back problems and other musculoskeletal disorders may at the same time be an important contributor to the current and increasing shortage of workforce within the sector. The US estimates suggest that each year 12% of nursing personnel will consider a job transfer to decrease risk and another 12%-18% will actually leave the nursing profession due to chronic back pain (Moses, 1992; Owen, 1989). Similar estimates have been made in Europe, and a recent Swedish study showed that nursing personnel reporting musculoskeletal problems and those who experienced limited use of transfer devices were more likely to leave nursing profession (Fochsen et al., 2006).

The economic burden imposed on society is huge and several strategies have been implemented to prevent musculoskeletal injures in nursing. Unfortunately, traditional approaches on training nursing personnel in lifting technique and body mechanics are still widely used, although available evidence demonstrates that these approaches are ineffective in reducing injuries. However, partly as a result of these shortcomings, there has in recent years been a swing in preventive efforts towards implementing safe patient handling programs based on a "no lift" policy and an extensive use of patient handling equipment and assistive devices (see section on risk assessment).

4. Risk assessment

Risk management consists of any attempts to assess risk (as experienced by different target groups, such as experts, decision makers, employers and employees), to predict its occurrence, magnitude and harm, and to reduce or control expected consequences. Although terminology may differ across disciplines, risk assessment is the first step in this process, such that risk management is risk assessment plus risk reduction (European Agency for Safety and Health at Work, 2002). The outcomes of risk assessment are useful (1) for designing and implementing risk reduction programmes and interventions, and also (2) for evaluating and monitoring any changes brought by such programmes.

There are a number of tools available for the assessment of psychosocial and physical hazards. They all have an underlying problem solving approach and they offer practitioners the ability to identify the causes of health and safety hazards, they also facilitate the development of practical solutions and interventions, and guide their implementation and evaluation.



4.1 Risk assessment for psychosocial issues in the health care sector

Specific evidence-based tools for the assessment of work - related stress have been reviewed in the Agency's web article "Practical (evidence – based) assessment and interventions tools for work – related stress". Psychosocial risks to health, however, also include other hazards such as violence and bullying.

Risk assessment consists of five steps (European Agency for Safety and Health at Work, 2002):

1. Identification of features in the work environment which may act as **hazards**. Hazard is considered as any working condition which has the potential to affect employee health. Workers' expertise and knowledge are important for this step.
2. Assessment of **harm** to the health of individual employee (outcomes can relate to self-reported stress, burnout, depression, anxiety, physical or secondary physiological symptoms etc) and the whole organisation (outcomes considered are high absence, high turnover, reduced productivity etc).
3. Identification of **associations** between hazards and harm. Such a statistical association highlights the likely risk factors which are then discussed and prioritised with the target group.
4. Examination of **management practices and resources** available in the organisation to support any decisions and change programmes.
5. Identification of **residual risk**. These are risks not addressed by the organisation, but which still need to be tackled.

Frequent re - assessment and also evaluation of the outcomes of any intervention is essential. Some organisations carry out annual risk assessments in order to monitor progress and change. In addition, it is important that there is management - employee consultation on any decisions on how to tackle these risks. This will ensure that the outcomes of the assessment are valid and that an appropriate level of commitment exists to carry out and sustain any change.

The main difference between risk assessment for psychosocial issues and risk assessment for ergonomic or physical hazards is that in the first one it is important to acknowledge the individual's perceptions and past experience. Risk is no longer a combination of objective probability of occurrence and negative impact, but also includes subjective perceptions of "riskiness" and adverse effect. This is not only important for the assessment, but also for the successful management of risk as any risk reduction programme that is based on employee involvement will have increased likelihood of success.



4.2 Risk assessment for ergonomic hazards in the health care sector

Risk assessment for physical hazards due to patient handling is a prerequisite for effective preventive measures and has been the subject of a large number of guidelines mainly from the US, the UK and Canada. The bearing principle in all the guidelines is that manual lifting of patients should be minimized in all cases and eliminated when feasible, and is thus in concordance with the requirements laid down in the EU Manual handling directive ([90/269/EEC](#)). They specifically promote the implementation of a "no lift" policy as a mean of preventing musculoskeletal disorders among health care personnel.

Risk **identification** in patient handling varies by setting and may be different in geriatric long - term care, nursing homes, acute care or home care. Most patient handling activities may impose a risk, but more precise risk identification as a way to prioritize the patient handling tasks that impose the greatest risk, can be accomplished by reviewing and analyzing information on injury statistics, worker surveys and incident investigation reports. A number of high-risk tasks with a generic component have however been identified across settings e.g. transfers to and from bed to chair, transfers from chair to toilet, lateral transfer to and from bed to stretcher, repositioning in bed, repositioning in chair.

The **assessment** of risk in these tasks should as a minimum consider the following factor:

- The physical demands of the task e.g. force required, awkward postures and frequency and duration of the task.
- Patient characteristics e.g. size and weight (problems with overweight or bariatric patients are increasing), the ability and willingness of the patient to understand and cooperate, and any medical conditions that influence the choice of method for transferring or repositioning the patient.
- Work environment e.g. workspace and layout of furniture
- Work organisation e.g. shift organisation and staffing

Risk assessment provides the basis for implementing **control** measures that can be categorized as either engineering (changes in equipment or the way the job is done), administrative (policies that regulate exposure) or behavioural (training of staff in patient handling) controls. Evidence based approaches have identified the types of control measure that are the most efficient and provide a firm base for recommending the use of engineering controls (patient handling equipment and assistive devices e.g. ceiling lifts) and patient assessment protocols. The latter include algorithms for safer transfers and help the nurses in selecting the safest equipment, technique, and number of staff needed to perform safe patient handling. In addition, the



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implementation of administrative controls such as “no lift” policy has been shown to be efficient. A “no lift” policy is a programmatic approach including elements such as the elimination of awkward manual patient handling by the use of transfer equipment, training/retraining of staff in proper use of equipment, an environment where use of equipment is expected, encouraged and enforced, employee participation in all aspects, injury investigation, follow-up and subsequent evaluation.

6. Policy overview

Risk assessment is the key factor in improving the working environment in the health care sector and this key role is emphasised in the EU Framework Directive of 1989 stressing the obligation of the employer to asses the risks and implement protective measures. The EU legislation on safety and health at work (<http://osha.europa.eu/legislation/directives>) places special emphasis on prevention as opposed to treatment, thus enhancing the role of risk assessment for the management of health and safety. Within the frame of this requirement it has been shown that a collaborative or participatory approach when health care workers and management work together to identify problems and implement evidence based solutions has been the best way to deal with the working environment issues in the sector.



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