

## **A 'MANAGEMENT STANDARDS' APPROACH TO TACKLING WORK-RELATED STRESS – PART I RATIONALE AND SCIENTIFIC UNDERPINNING**

### **ABSTRACT**

In the late 1990's, the Health and Safety Commission, as the lead authority in the UK responsible for Health and Safety at Work conducted an extensive consultation exercise to elicit views about how work-related stress should be tackled. The Commission subsequently decided that regulation was not justified and opted for an approach with four strands. One of these was to work with partners to develop, clear, agreed standards of good management practice. This paper describes and discusses the rationale behind a standards based approach that is essentially based on a method of controlling hazards. HSE's Management Standards approach uses a taxonomy of six stressors that has evolved out of extensive research carried out on behalf of Health and Safety Executive (HSE) and in conjunction with stakeholders, and a three-phase risk assessment methodology. Further developmental work on the management standards and associated measurement tools is described in a companion paper in this issue of the journal (Cousins, *et al.*, 2004). The emphasis is on prevention towards reducing stress in the UK working population. We review current thinking on models of work stress, consider evidence linking workplace psychosocial factors and various health and organizational outcomes, and examine the effectiveness of organizational interventions. We argue that the literature supports an approach that aims to move organizational states (represented by the current situation) to more desirable ones (represented by the six Management Standards), and that this is an effective 'population' based approach to tackling workplace stress and promoting individual and organizational health.

Keywords: prevention, population, stress, Management Standards

## 1 INTRODUCTION

Data given in a Health and Safety Executive report (HSE, 1999a) estimated that work-related stress costs employers about £353 million to £381 million *per annum* (in 1995/1996 prices) and society between £3.7 to £3.8 billion. Since these calculations were done, the estimated number of days lost due to stress has more than doubled (Jones *et al.*, 2003). In response to these data, there was widespread agreement that action was necessary. The Health and Safety Commission (HSC) as the body responsible for the oversight of health and safety matters in the UK, has taken the lead in tackling work-related stress, and as part of that lead has set targets for the overall reduction in the burden of occupational health in the UK.

A strategy was agreed by the Commission at its meeting of 5 December 2000. This followed on from a public consultation exercise in the form of a discussion document entitled 'Managing stress at work' (HSE, 1999b) carried out between April and July 1999, the results of which were considered by the Commission in May 2000. The discussion document set out a number of challenges and possible approaches, including proposals for an Approved Code of Practice (ACoP; a quasi-regulatory approach which requires more formal compliance than adhering to guidance) and invited ideas for solutions. Almost all of the respondents to this exercise agreed that stress at work is a health, safety and welfare issue and one that should be dealt with under the existing UK regulatory framework. Almost all respondents thought that more needed to be done to tackle stress and many wanted an ACoP telling them how to go about it. The Commission decided that uncertainties about means of enforcement for such an approach precluded putting an ACoP in place at that time, but determined to keep the need for an ACoP under review in the future. HSC also recognised that there were a number of scientific and practical difficulties in making recommendations towards stress management. These barriers included, first, disagreements about terminology and theory, second, there were few studies of the effectiveness of interventions, and third, line managers had little motivation to take action (Daniels, 1996).

The issue for HSC was to devise a programme of work that would be effective at reducing work-related stress in the face of these obstacles. Consequently, work-related stress was adopted as an HSC 10-year priority programme. One of the aims of this Stress Priority Programme was to develop clear, agreed standards of good management practice for a range of stressors. The idea behind the use of an approach based on standards was that, as a well-established health and safety control measure, they would help employers to be clear about what was expected of them. It would also allow employers to monitor their performance in managing work-related stress both in terms of employee health and well-being and the enhancement of organizational effectiveness.

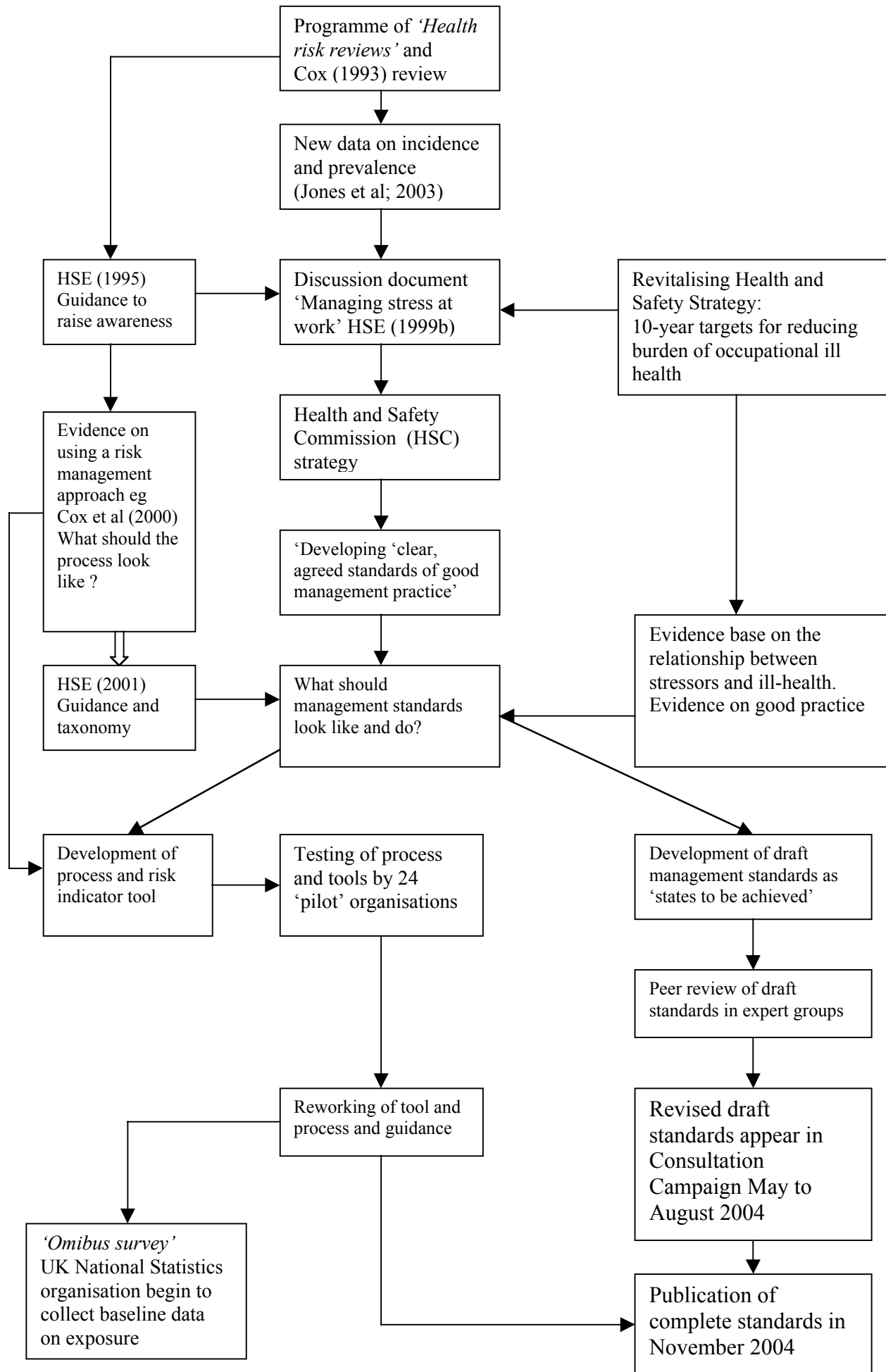
In preparing plans to implement this strategy, HSE identified a number of challenges that needed resolving before fully-fledged standards could be issued. These included:

- what is meant by a standard? (a process of managing the issue, an outcome to be achieved, or both?);
  - how to ensure that the standards will be applicable to a broad range of employers;
  - devising a taxonomy for the key stressors and the interrelationships between them;
  - the process by which standards will be developed including the key role of stakeholders;
- and
- the mechanisms by which organisations could measure their performance against the standards.

This paper does not attempt to cover all the relevant literature that pertains to these issues, nor is it meant to be a review of all the facets of work stress. Its aim is to summarise the existing HSE approach to stress, describe how this has been developed and to explain the thinking, rationale and scientific underpinning behind the development of the UK stress Management Standards, within the context of the challenges noted above, from both a practical and theoretical perspective. First, we discuss the basis for the existing guidance and discuss the development of a taxonomy for work-related stressors. We then briefly review the basic

concepts of risk management. Discussion then concentrates upon the general evidence, from a number of disciplines, linking psychosocial factors to harm and specific instances linking particular stressors to ill-health and related outcomes. We then develop the idea of standards in terms of *organizational states to be achieved* and discuss how these may be linked to conformance. We conclude with a discussion of how organizational interventions may bring about improvements in performance – the aim being to shift the working population under consideration to a more desirable or better state. A companion paper, Cousins et al (2004) considers some of the practical issues underlying the development and evaluation of the standards and the associated indicator tools. The flow diagram shown in Figure 1 shows how the developments described in these two papers fits into the overall Health and Safety Commission (HSC) strategy for tackling work-related stress in the UK. The re-drafted standards will be the subject of a consultation campaign that will run during the summer of 2004 to further test their acceptability and it is intended that the final version will be published in November 2004. Their status will be that of guidance. That is they will not be legally enforceable but will help employers and others comply with their duties under the law.

Figure 1 A flow diagram to indicate how the development of the management standards fits within the Health and Safety Commission's work plan and strategy on work-related stress



## 2 THE GUIDANCE BASED APPROACH TO WORK-RELATED STRESS

In the late 1980's HSE undertook a prioritisation exercise (*Health Risk Reviews*) that resulted in ranking the leading causes of occupational ill-health. In this list, work-related stress was ranked second in importance and impact after musculoskeletal disorders. In response to these new priorities, in 1991, the HSE commissioned a review of the literature on work-related stress (Cox, 1993) to inform its work on tackling the problem. Its terms of reference were to provide an overview, within the conceptual framework implied by current health and safety legislation, of the scientific literature relating to the nature, and health effects, of work stress and to the nature, and effectiveness, of stress management programmes.

Cox (1993) took as his starting point an existing model of stress based on the transactional approach (Cox, and Mackay, 1981). He emphasised that there exists a growing consensus on the definition of stress as a psychological state with both cognitive and emotional components. There is now good agreement on the key features of the stress process (Cooper, Dewe and O'Driscoll, 2001). In particular there is the notion that stress entails a sequence of events that include the presence of demand, a set of evaluative processes through which that demand is perceived as significant (in terms of threat, and in terms of its impact on individual resources or requiring of the individual something other than normal functioning), and the generation of a response that typically affects the well-being of the individual. One may also add over and above the importance of individual (subjective) appraisal and perception, the importance for the individual of failing to cope (Lazarus and Folkman, 1984) with demands and the consequences of failure to cope (Sells, 1970). More recent thinking suggests that systems should incorporate the ability to enhance personal resources such as self-efficacy which may be important for taking advantage of, for example, increased autonomy brought about by a work redesign intervention and coping with change generally. But, to summarise, the key feature of all of these models is the importance of *a perceived imbalance or discrepancy between*

*preferred or desired levels of particular environmental features and actual or reported levels themselves* (Warr, 1990).

The Cox (1993) review also integrated physical and psychological stressors and developed a hazard-based taxonomy centred on aspects of job content and job context; it also introduced the concept of a control cycle approach to risk management. These ideas formed the basis for subsequent HSE guidance, *Stress At Work – A Guide for Employers* (HS(G)116; HSE, 1995) which gave a series of basic messages emphasising that excessive pressure from extreme demands may lead to an employee’s inability to cope and introduced the concept of jobs that are ‘do-able’, achieved through a combination of job design and effective training leading to better ‘person-job fit’ (Caplan, 1987). Subsequently this approach has been further developed and incorporated into frameworks for intervention (Cox *et al.*, 2000; Cox *et al.*, 2002).

The taxonomy developed from Cox’s research, in conjunction with the findings of other HSE funded studies, formed the basis for the approach adopted in the development of draft Management Standards. Also, following the publication of the 1999 Discussion Document, HSE held a series of stakeholder workshops at which the issue of a practicable taxonomy was discussed. Considerable deskwork was then done in-house to review all existing taxonomies and how to examine how individual stressors combined. As a result of this research, outputs from the workshops and subsequent discussions a grouping of seven stressor areas was agreed. These formed the basis of HSE guidance *Tackling Work-Related Stress* (HS(G)218; HSE, 2001) and are as follows:

- Demands (includes issues like workload, work patterns and the working environment)
- Control (how much say the person has in the way they do their work)
- Support (includes the encouragement, sponsorship and resources provided by the organisation, line management and colleagues)
- Relationships (includes promoting positive working to avoid conflict and dealing with unacceptable behaviour)

- Role (whether people understand their role within the organisation and whether the organisation ensures the person does not have conflicting roles)
- Change (how organizational change (large or small) is managed and communicated in the organisation)
- Culture (the way in which organisations demonstrate management commitment and have procedures which are fair and open)

In the subsequent work on the standards the separate topic of culture was dropped insofar as it underpins the approach to each of the others. Thus aspects of culture are incorporated into each of the remaining six.

*Tackling Work-Related Stress* (HSE, 2001) introduced some basic concepts of risk assessment, using a simple ‘5 steps’ approach – an approach suggested for any health & safety hazard – see *Five Steps to Risk Assessment* (INDG163 (rev.1); HSE, 1998), and recommended that this approach be adopted when tackling work-related stress.

*Figure 2. Five Steps to Risk Assessment (from HS(G) 218; HSE, 2001)*

STEP 1

Look for the hazards

o

STEP 2

Decide who might be harmed and how

o

STEP 3

Evaluate the risks and decide whether  
the existing precautions are adequate  
or whether more should be done

o

STEP 4

Record your findings

o

STEP 5

Review your assessment and  
revise it if necessary

### 3 HAZARD, HARM AND RISK IN RELATION TO WORK-RELATED STRESS

In this section we briefly review, particularly those not familiar with the UK approach, the basic concepts of risk management and discuss the evidence linking psychosocial factors to health outcomes.

#### 3.1 *Basic concepts*

3.1.1 The term **hazards** refers to those features (either physical or psychosocial or in combination) of the workplace that have the potential to lead to harm or unwanted consequences. In particular, psychosocial factors are concerned with the design, organisation and management of work. In the context of the present paper they do not refer to individual differences such as personality or behavioural or social factors, coping style, hypochondria, family or socio-economic status. Cox (1993) gives a definition of psychosocial hazard as aspects of job content, work organisation and management, and environmental, and organizational conditions which have the potential for psychological and physical harm. In the case of work-related stress the nature of the exposure characteristics are likely to be varied and complex.

3.1.2 **Harm** refers to the type and nature of impact upon employees' health. Harm may be acute or chronic and relates both physical and psychological outcomes or functioning. In terms of importance physical outcomes commonly associated with stress at work include heart disease and the metabolic syndrome; important mental health outcomes include anxiety and depression. Such manifestations may have different levels of severity from minor incapacity to severe impairment. Recent evidence indicates that the physical and psychological consequences of stress in the workplace may have common biological pathways (McEwan, 2000). Apart from individual health impacts harm may also refer to organizational outcomes such as sickness, error and impaired efficiency.

3.1.3 **Risk** refers to the likelihood that exposure to a hazard will lead to harm. The aim of any preventative strategy must be to keep exposures well below a level at which harm is manifest.

A preventive strategy will have elements comprising both surveillance and control measures. To design these properly it is important to have an understanding about the relationships between hazard, harm and risk.

### 3.2 *Evidence of links between psychosocial hazards and harm*

There now exist a number of systems that set out a series of criteria for gauging the strength of evidence supporting associations between risk factors and disease and categories for rating the quality of scientific evidence for the effectiveness of an intervention (Shekelle *et al.*, 1999).

These range from evidence drawn from systematic reviews of randomised clinical controlled trials to opinions of respected authorities, clinical experience, descriptive studies, or reports of expert committees. In the case of work-related stress, studies that convincingly demonstrate an *association* between work factors and ill-health are extremely plentiful. However, interpretation of these data has been hampered by numerous well-documented methodological problems (Mackay, and Cooper, 1986; Kasl, 1987) with the result that *causation* (*i.e that a particular work factor led to a particular health outcome*) is difficult to demonstrate. This is important because if the associations are not causal, interventions targeting psychosocial exposures are unlikely to lead to improvements in population health (Macleod, and Davey Smith, 2003). But commentators examining these approaches from a public health (McPherson, 2001) and an organizational health perspective (Griffiths, 1999) suggest that the medical-clinical and natural science paradigm implied in these rating systems may not be appropriate for judging interventions in the (working) population, and more particularly, the absence of such high quality data in the public health sphere should not be an excuse not to take action (Treasury, 2004).

Evidence about the nature of causal links between psychosocial hazards and particular types of harm can be found in two broad but related lines of evidence. First, from empirical studies of those doing ‘work’, usually in real-life working conditions and, second, from studies of biological pathways and mechanisms. In the context of human studies, data have accumulated from a number of settings based largely upon, but not wholly confined to, epidemiological settings (Mackay, 1984). These include laboratory studies (Frankenhaeuser, 1981), simulated work environment (Cox, *et al.*, 1981), field studies (Parkes, 1994), clinical reports (Broadbent, 1981) and data from case study material (Parker, and Williams, 2001).

### *3.2.1 Biological evidence*

There is now much evidence that demonstrates that there are a multitude of biological processes that mediate the pathways between stress and various disease states (both physical and psychological). Good overviews of this literature can be found in Brunner (2002), McEwan (2000) and Sapolsky (2003). Briefly, the main candidate mechanisms for the link between psychosocial factors and certain physical end points include:

- Homeostatic and allostatic changes in response to stress (Sterling and Eyer, 1998)
- Neuroendocrine changes (Frankenhaeuser, 1981) and alterations of autonomic function (O’Connor, *et al.*, 2000)
- Development of the metabolic syndrome and insulin resistance (Brunner, 2002)
- Disturbances in coagulation (Brunner, 2002)
- Inflammatory and immune responses which mediate the susceptibility to infection (Cohen, *et al.*, 1991,1998)
- Psychological mechanisms such as anxiety, hypervigilance and risk taking (Mann, 1992; Janis, and Mann, 1977).

### *3.2.2 Epidemiological and psychosocial evidence*

Specifically in connection with the psychosocial risk factors representing the taxonomy outlined above, there are data on each of these mechanisms to support a link between work and

dysfunction. These include mental health (de Jonge, *et al.*, 2001), general physical health (Parkes, Mendham, and von Rabeneau, 1994), immune functioning (Sapolsky, 2003) and blood pressure levels (Fox, Dwyer, and Ganster, 1993; Landsbergis, *et al.*, 1995; O'Connor, *et al.*, 2000; Van Egren, 1992).

Early conceptualisations of work stress emphasised that there is a discrepancy between skills and abilities, and job demands, and between employee goals and values. The result is a lack of (Person-Environment) fit which contributes to overload, role ambiguity and conflicting role demands (Caplan, *et al.*, 1987). Person-Environment fit concepts, especially role ambiguity and role conflict, have been investigated in numerous studies. Further development of this approach identified the importance of interpersonal relationships at work. Such relationships result from difficulties with supervisors, co-workers, subordinates and increasingly, customers.

Subsequently, Karasek's (1979) Demand/Control model focused on the interaction between the objective demands of work and the decisions latitude of employees in meeting those demands; it has sometimes been characterised as a black box approach (Karasek, and Theorell, 1990). Further elaboration of this model also recognises the importance of support from supervisors and co-workers (Karasek, Triantis and Chaudry, 1982). The key role of support had been, for some time, the focus of an extensive research programme linking social support to health outcomes (House, 1981). Since these landmark studies, considerable new data have accumulated in the literature linking job related factors to individual and organizational outcomes, together with empirical attempts to combine the two approaches into an 'integrated' approach (Baker *et al.*, 1996). In the remainder of this sub-section we briefly review some selected studies that link each of the six stressor areas with a range of health outcomes

Analyses of data from the Whitehall 2 studies found that high job demands was a predictor of poor health functioning and psychiatric disorder, and that lack of control was moderately associated with risk of alcohol dependence. Work social supports and control over work had a protective effect on mental health and health functioning and reduced the risk of

spells of sickness absence (Stansfeld, *et al.*, 2000). A subsequent study, examining physical health outcomes (Head, *et al.*, 2002), found that high job demands, low decision latitude and effort reward imbalance were all related to increased incidence of coronary heart disease. These effects were not explained by conventional risk factors such as smoking or blood pressure. Adverse changes in levels of work characteristics, particularly social support at work predicted worsening mental health functioning for men and women. Although the effects of change in work characteristics on physical health and coronary heart disease were modest, there was evidence to support a longer-term influence on physical functioning and longstanding illness.

Several reviews of large volumes of research testing the demands-control model have been published (e.g. Fox, Dwyer and Ganster, 1993; Schnall, Landsbergis and Baker, 1994). These indicate that there is some empirical support for the Karasek's (1979) hypothesis that job demands, especially those of high workload, interact with control perceptions to explain physical and medical health outcomes. The evidence, however, tends to be derived from cross sectional level studies. There remains the argument that demands and control still exert an important influence on (stress) outcomes in their own right, and that their impact is not solely in the interaction. This position is supported by large-scale prospective epidemiological studies which tend to find main effects of demand and control on health rather than interactions (e.g. Stansfeld *et al.*, 2000). Not least for pragmatic reasons, HSE is only providing recommendations based on the main effects of demands and control in the Management Standards, at present.

In the organizational research literature social support is defined as the availability and quality of an employee's relationship with supervisors, co-workers, family and friends and the amount of positive consideration and task assistance received from them (Cohen, and Wills, 1985; Fusilier, Ganster and Mayes, 1986; Kottke, and Shrafiniski, 1988). Social support, especially from supervisors, has a beneficial effect on worker performance and well-being (Ganster *et al.*, 1986; ) and in some conceptualisations is seen to buffer the effects of stress on

ill-health (Frese, 1999), thereby contributing to lower health care costs (Manning, Jackson and Fusilier, 1996). In a recent meta-analysis study the availability of social support was found to moderate the stress or strain relationship, mitigate the influence of perceived stressors, or reduce the level of strain (Viswesvaran, Sanchez and Fisher, 1999).

Selye (1974) suggested that having to live with other people is one of the most stressful aspects of life. This is also true of working relationships, for being 'at work' typically means significant interaction with other people, whether colleagues, bosses or subordinates. These relationships can be a major source of both stress and support (French, and Caplan, 1972; Makin, *et al.*, 1996). Arnold, *et al.*, (1998) note that poor relationships have been defined as those which include a lack of trust, little support, and low interest in listening and attempting to tackle work place problems. Quick & Quick (1984) identify five specific interpersonal stressors that arise from the demands of social system relationships at work: status incongruence, social density, abrasive personalities, leadership style, and group pressure. Associated with the above variables is workplace bullying and workplace violence that are commonly recognised as being extremely distressing to victims. Whilst there is a dearth of studies that clearly delineate the association of 'relationship' variables to stress and health outcomes, we observe that 'stress cases' that have been presented to the courts typically include some relationship difficulties underpinning the basic complaint. Moreover, Mayhew, and Chappell (2003) argue that bullying and violence have both personal and organizational costs. Specifically, they draw on supporting evidence to assert that around 40% of victims do not turn to anyone at all for support, but as the bullying continues, victims reduce their commitment, and then leave the organisation. Similarly, Birman (1999) has reported that bullying is a significant contributor to the shortage of nurses, and Quine (1999) warned that there may be a high price paid by health care organizations which ignore complaints of bullying in early stages. This is unlikely to be specific to the health care sector.

Role ambiguity originally referred to the unpredictability of the consequences of one's own role performance. Later models have extended the definition to include the lack of information needed to perform the role, and the typical measure of this construct assesses both the unpredictability and information deficiency regarding role behaviours. Numerous studies have demonstrated a persistent link between substantiated role ambiguity in the job and high levels of psychological strain (e.g. O'Driscoll and Beehr, 1994; Schackaboeck, Cotton and Jennings, 1989). Similarly role conflict, which reflects incompatible demands on the person, has a detrimental effect on both self reported strain (O'Driscoll and Beehr, 1994) and physiological indicators of it (Kahn and Byoserie, 1990).

Change is now a pervasive feature of organizational life. Undoubtedly, the way changes (both major and minor) are managed, and the appropriateness of the methods used, have a major influence on the perceptions and experiences of people involved. Reports of associations of stress and change are underpinned by the fact that organizations can and do experience great difficulties in managing change effectively (Howarth, 1988; cited in Arnold, *et al.*, 1998). There are plenty of examples in the literature of change programmes that have done drastically wrong (e.g. Burnes, and Weekes, 1989; Cummings and Huse, 1989; Kanter, *et al.*, 1992; Kelly, 1982a, 1982b). Stress ensues because many organizational changes are forced by the need to 'rationalise', and thus are accompanied by job insecurities and the increased burden of fewer people to do more work. There are now emerging various models of change management, although most of these essentially build on the work of Kurt Lewin in the US in the 1940s and 1950s. With respect to the association of organizational change and stress, the Management Standards approach strongly advocates that change management programmes should include bottom-up consultation with employees from start to finish, as promoted by Benjamin & Mabey, (1993), and Clarke (1994).

### 3.3 Further Supporting Evidence

#### 3.3.1 Systematic reviews

The very many published studies of links between workplace psychosocial stressors and health and related outcomes have been the subject of a number of recent systematic reviews (de Lange *et al.*, 2003; van der Doef and Maes, 1999; Rick *et al.*, 2002). The last of these was commissioned by HSE to examine the science base to support the generation of the Management Standards described later. This review looked at demands, control, support and aspects of relationships in the UK working population, the effects of these stressors on health, well-being and performance, the mechanisms by which these stressors have effects on outcome measures and the extent to which organizational activities may reduce negative impacts or enhance health. As perhaps would be expected, they concluded that there is insufficient evidence to answer each of these questions with complete satisfaction. In relation to the development of standards they say,

"...given the importance of context, and the relative lack of evidence that applies across all contexts, any standards that are developed also need to encourage a bottom-up approach to understanding how stressors cause problems in each particular organisation or part of an organisation, and what can be done locally to address these issues. A bottom-up approach is particularly relevant in this context, given the broad range of work characteristics which could be important in modern work settings....."

Rick *et al.* (2002; p163)

Recent HSE funded work on organizational interventions describes both process based approaches (Cox, *et al.*, 2002) and standards based approaches (Briner, *et al.*, 2003) for achieving a bottom-up approach. The key feature of both of these studies is that they emphasise the criticality of employee involvement throughout the process.

### 3.3.2 *Studies involving changes in job design*

To be sure that a putative psychosocial risk factor actually is involved in the causal chain of disease development, it is necessary to show that *eliminating or reducing exposure to the risk factor will lower the likelihood of the disease* (Pickering, 2001). There have been a series of high quality case studies (Parker, *et al.*, 1998) that have examined the impact of organizational interventions in the shape of job re-design (typically using quasi-experimental designs) on health and organizational measures. All these studies contain data on important job characteristics (e.g. control, variety, demands, role conflict), on psychological morbidity (via General Health Questionnaire (GHQ; Goldberg, 1978)) on job-related strain and on job satisfaction. In summary, these studies show that where job design is introduced within the context of the working system and with active employee involvement (a prerequisite), significant improvements in mental health can accrue. But in one case study, that in a sense represents *a change from a more desirable to a less desirable state*, involving the reintroduction of a repetitive moving line (thus decreasing autonomy and skill variety), a significant *impairment* in mental health resulted.

Studies using a natural experimental design in student nurses on different types of ward environment (Parkes, 1982) and a fully experimental design on workload reduction in driving examiners (approximating to a randomised control trial; Parkes *et al.*, 1986) both showed significant changes in mental health.

### 3.3.3 *Direct and indirect effects in relation to psychosocial hazards.*

What are the mechanisms by which psychosocial factors exert their effect? Two pathways may be discerned (Brunner, 2002). First, an indirect one by which stressors impinge on the propensity to engage in behaviours (smoking, exercise, drug usage, absence behaviour, specific food intake), which may aid coping in the short term but may have longer term adverse health consequences. Second, a direct pathway in which physiological changes are brought about in response to perceived psychological challenge or threat. In reality, the pathways are not

mutually exclusive but a concentration on one or the other has implications for control measures in terms of health policy. The physiological changes brought about by low control environments may lead to attempts to down regulate (dampen) the unwanted bodily responses through inappropriate coping behaviours. High demands jobs may include long working hours, which will impinge on free time that could have been devoted to exercise or at least recuperation (Brunner, 2002).

Empirical data from a number of studies, including the Whitehall 2 study, (Head *et al.*, 2002) support the hypothesis that both these biological pathways are important mediators between the psychosocial work environment and health, and that coping styles involving, for example, alcohol misuse are related to psychosocial factors such as control.

#### **4 THE VALIDITY OF A RISK ASSESSMENT APPROACH TO WORK-RELATED STRESS**

The European approach to health and safety is one that encapsulates the notion of primary prevention - exemplified by the hierarchy of control measures approach in the British Management of Health and Safety at Work Regulations (1999). A key feature of the hierarchy of control approach is that collective protective measures must be given priority over individual protective measures. It has been cogently argued that the basic equations and language of health and safety management and the application of control measures (such as standards) can, in fact, be used for practical workplace action (Cox, 1998). However, this approach has not met with universal agreement. For example, Rick, and Briner (2000) have suggested that because of the essentially psychological nature of the stress process - in particular the uncertainty about the relationship between hazard and harm - a risk assessment and risk management approach as applied to physical hazards may not always be appropriate.

Earlier we referred to the importance of distinguishing between the current state and some required or desired state. The preferred or desired states can be regarded on the one hand

as reflecting an internal, perceived situation, but can also be seen to reflect a more ‘objective’ view of the working environment. This more ‘objective’ view drawn from, for example, the demands-control literature referred to earlier may be seen as the starting point for the specification of a minimum set of requirements for particular work characteristics and thus as a **state to be achieved**. The organizational psychology and job design literature provides good evidence of what might be incorporated in such a state. The actual or reported levels can be seen as the current situation, as perceived by the work group, and can be obtained by a **risk assessment process** which allows a comparison to be made between the current and desired state of affairs based on aggregated data of the workgroup.

There are many ways that these data could be captured, but there is good evidence that standard risk assessment methodologies adapted for psychosocial hazards are appropriate. But any assessment must be informed by the current evidence base for the most critical stressor areas (as in the taxonomy described earlier), together with a bottom-up approach that is able to capture local concerns and context.

Risk assessment also ensures that the employer’s response in managing risk is commensurate with that risk. Current principles of risk assessment require that they should be ‘suitable and sufficient’ rather than perfect or ideal. A key feature particularly in relation to the assessment of work stressors is the importance of worker participation and involvement. The concept of risk assessment and management is very well developed for physical hazards; less so for psychosocial ones, but with modification, we argue, the basic principles can still apply. A risk assessment should try to identify, for a defined employee group with some certainty, and in some detail, any significant (non trivial) sources of stress relating to its work and working conditions, that can be shown to be relevant to the health and well-being of that group or of the organization.

## **5 THE CONCEPT OF MANAGEMENT STANDARDS FOR WORK-RELATED STRESS**

The use of technical standards is a well established method of facilitating control of risks to health and safety. Standards vary in type - from specifications of performance goals to guidance on operational practice to design criteria for industrial products. They may be generic or specific. They are sometimes referred to in HSE's published guidance, and occasionally, use of standards is required in regulations and codes of practice.

There have been numerous attempts to try to define desirable working conditions both in terms of minimum or optimal requirements. These can be found for instance in the literature on job enrichment (Gardell, 1981; Warr, 1990; Parker, and Williams, 2001), job satisfaction (Locke, 1976) and work stress (Kasl, 1992).

The concept of defining desirable states for particular job design domains has been advanced by Landy (1992) in the form of *standards* based upon recommendations of an APA/NIOSH panel on work design and stress (Keita, and Sauter, 1992). Apart from these few references, no further specific literature about management standards for stress exists. However, the use of standards in specifying desirable (not stressful) working conditions has been successfully accomplished in the case of mental workload (ISO 10075) and display screen equipment (ISO 9241) and in the UK there is an existing human resource management standard (Investors in People) which specifies desirable (organizational) states to be achieved. The same approach has been successfully used to develop internal company management standards for work-related stressors in an offshore environment (Briner *et al.*, 2003).

A standards based approach of comparing desired states with actual states was embraced as the key to developing HSE's approach to controlling work related stress, as it was both conceptually valid and it also met the expressed needs of the potential users. Each of the six Management Standards has a title and a platform statement that represents conformity with that

standard. This is represented as the percentage of the workgroup who agree that a certain state of affairs exists. This is then followed by a list of particular 'states to be achieved'.

A number of fundamental principles were used to generate the states to be achieved for each of the proposed Management Standards. First, that there is a corpus of knowledge drawn largely from the job design (and redesign) literature which enables key features of particular work characteristics which have an impact on health and well being to be defined. Second, deficiencies in the structure of particular jobs or roles can be identified by suitable risk assessment or task analysis methodologies. Third, that such deficiencies can be appreciated by job holders. Fourth, there exist reasonable practical steps that can achieve significant improvements in the content of jobs - either by minimising the psychosocial risk inherent in them or by building in desirable features known to promote health and well-being and employee effectiveness. We therefore drew on the extensive literature on job design, especially as it applies to the prevention of workplace stress, and where there was high quality case study material to support such an approach (eg Parker *et al.*, 1998).

From a usability aspect, potential users of these standards emphasised that each should be succinct (no more than an A4 page) and to be written in language that could be easily interpreted by line managers and their staff. The form and content of the original six Management Standards is shown in Appendix 1. While the Management Standards would be necessarily generic, they would need to be supported by an implementation process that allowed them to be adaptable and relevant to local circumstances.

To enable organisations to measure their performance with respect to the state to be achieved an indicator tool was developed. For each of the Management Standards a series of questions were derived which allowed organisations to judge their current state based on responses from individuals within their group. The design of the indicator tool is therefore based on capturing employee's perceptions of their work, and thus reflecting current

understanding of the stress process within the organisation. Studies of the validity of this approach are described in a companion paper (Cousins, *et al.*, 2004).

It was envisaged that the Management Standards would apply principally to small teams and work groups, but of sufficient size to allow a meaningful response to the Indicator Tool. The Management Standards, as they are written, also incorporate some of the principles set out earlier in that they are responsive to personal appraisal of the situation, and encourage participation, involvement and dialogue. They are also written in a way that encourages users to think about the mechanisms by which hazards might be linked to harm, and thus point to opportunities for improvement.

## **6 ASSESSING CONFORMITY WITH THE STANDARDS**

To allow organisations to gauge their performance, and to encourage continuous improvement, the Management Standards methodology has within the platform statement for each standard (and the HSE tool) a threshold above which the opinion of a specified percentage of employees should fall. Achieving this threshold is considered to indicate that management practices within the organisation conform to good practice with regard to preventing the occurrence of work related stress

The rationale underlying this approach derives from a number of sources. Health and safety standards in relation to other types of exposures, such as physical or ergonomic hazards do not always set out to protect 100% of the population from harm, as there is a recognition of the effects of biological variability in the population. The exact percentages will depend on the severity of the consequences, the strength of the evidence, and the ease with which control measures can be applied.

The use of percentages as ‘cut-offs’ for judging level of risks derived from risk assessment data has been widely explored in the literature (Cox, 2000). Information derived from workplace surveys (e.g. table on page 198 showing cross case study comparisons in

Jackson, and Parker, 2001) that have collected ratings of work characteristics show that it is uncommon to find total agreement either that stressors/hazards do not exist – i.e. that the desired state exists for all of workgroup (100% agreement) or that a hazard is always present for all of a workgroup. As a rule, populations see particular factors having both negative, and positive, benefits on health (Guest & Conway, 2002).

Any percentage which is specified as indicating conformity should be done as a guide to good practice, that is, it should be ‘informative’, rather than as an absolute ‘normative’ requirement. The aim is to shift the population to a more desirable or better state. The aim is not to focus on particular individuals who might be considered to represent a high risk by virtue of the fact that they disagree with many items in a risk assessment questionnaire. Note, however, that separate consideration has to be given as to how to support individuals who may be thought to be at high risk of negative outcomes as a result of the use of the Management Standards process.

There should be a logical rationale for any values that are chosen to indicate conformity. It does have to be recognised however that there is insufficient relevant quantitative information on which to base these percentages at the present time. This is likely to change in future and any percentages selected can be modified following testing and in the light of these new data.

Examples of standards using a percentage cut-off can be found in the standard dealing with child-resistant containers (ISO 8317, 2003) (85% of the test population should not be able to open a container within a specified time) and in the ISO standard for the performance requirements for the legibility of display screens (ISO 9241 -3, 1992) (perceived to be flicker free for 90% of test subjects). Also in the ergonomics field, the anthropometric approach to physical design of workplaces often uses data that enables the majority of a population to be accommodated (those above the 5<sup>th</sup> and below the 95<sup>th</sup> percentile, for example) (Pheasant, 1987).

The current standards are of two types:

- 1) Those concerned with *job content*; Demands, Control and Support. There is strong evidence linking these three stressors to health outcomes. The working population is widely exposed to them and it is reasonable to conclude that they are more amenable to successful intervention. The specified percentage for these has been set, in the first instance, at 85%
- 2) Those concerned with *job context*; Roles, Relationships and Change. There is less evidence in the literature linking these to ill-health outcomes (Rick, personal communication) The measures that could be used to influence them are likely to be more complex and slower to have any impact. In light of this, the specified percentage for these has been initially set at 65%.

The figure of 85% was derived, in part, from the Bristol, *Stress Health and Work (SHAW)* study that examined the scale of perceived stress at work (Smith, 2000). The results of this study revealed that approximately 20% of the sample reported that they had high or extremely high levels of stress at work. It was felt that a reasonable target to aim for with the initial introduction of the Management Standards was a reduction in the prevalence of these headline data by 5%, so that only 15% remain exposed in the first instance, hence the target percentage of 85% in three of the Management Standards. For the purposes of the testing of the standards in the pilot studies, a lower figure of 65% was specified for the remaining three Management Standards. It is recognised that this figure of 65% cannot be entirely justified empirically and that there may be concern that a significant minority of a population may remain exposed when the Management Standard might be deemed to have been met. In a sense, it was pragmatically derived after careful consideration by those in HSE familiar with the aims of the draft standards.

## **7 THE USE OF INTERVENTIONS TO ENHANCE CONFORMITY WITH THE MANAGEMENT STANDARDS**

There are now a number of extensive reviews on the effectiveness of different types of interventions, often based on the three-level model of primary, secondary and tertiary prevention, and guidelines on their design and evaluation (Parkes, and Sparks,1998). The majority of the studies in the literature have developed intervention strategies aimed specifically at the worker (Jordan, *et al.*, 2003; Semmer, 2003). But, increasingly organisations appear to be using a comprehensive approach involving employees and middle management, and gaining top management commitment.

The Management Standards as currently conceived are largely concerned with primary prevention (in terms of job redesign, skill enhancement, competencies, etc.). Each Standard has elements relevant to the other levels of prevention; secondary prevention in terms of, for example, management systems and, to an extent, a focus on individual as opposed to group concerns (tertiary prevention) (c.f. Cox, 2000 and Cooper, Dewe and O'Driscoll, 2001) about levels of prevention.

Each standard represents a desirable state to be achieved. The actual state is derived from the assessment process using an appropriate survey and discussions within focus groups. Action is planned on the basis of these discussions. Interventions will need to be tailored to the particular context and needs of the group at that particular time. HSE has published a number of studies concerned with the effectiveness of organizational interventions (Cox *et al.*, 2000, Parker *et al.*, 1998; Jordan *et al.*, 2003) and has issued some new guidance, in case study format, to help organizations implement control measures (*'Real Solutions, Real People'*, HSE, 2003).

Taken together the totality of evidence drawn from the evaluation of organizational interventions presents a mixed picture and we cannot yet give an unequivocal "Yes" to the question "Do organizational interventions work?" (Parkes and Sparks,1998). Whilst it is

possible to draw perhaps unnecessarily pessimistic conclusions (Briner and Reynolds, 1999, Reynolds, 2000) there are many positive findings, many null effects, but not many negative ones – although intervening in complex organizations will always run the risk of the last of these (Semmer, 2003). Where studies have employed strong designs, focused on a significant work stress problem, and used a range of different outcome measures, the most encouraging results have been obtained.

In the context of the management standards successful interventions have been demonstrated for workload reduction (Meijman *et al.*, 1992; Parkes *et al.*, 1986); job control (skill variety and autonomy; Parker *et al.*, 1998); support (Heaney, *et al.*, 1993) role conflict and role ambiguity (Quick *et al.*, 1997), relationships (O’Driscoll and Beehr, 1994), and organizational change (Schweiger, and Denisi, 1991). In terms of organizational outcomes, positive effects of organizational interventions on sickness absence have been found by Kompier *et al.*, (2000), Kvarnstrom (1992), and Terra (1995).

## **8 DISCUSSION OF MAIN ISSUES**

In this paper we have argued that a Management Standards approach is appropriate for the control of work-related stress. *Management* implies that risks arising from particular deficiencies in aspects of the working environment can be systematically addressed by a combination of well-established risk management methodologies adapted for the psychosocial work environment, coupled with contemporary human resource management approaches. Notwithstanding concerns to the contrary (Rick, and Briner, 2000) we now have good evidence from theory and practice that such an approach is valid (Cox, 2000; Jordan, *et al.*, 2003).

The term *Standard* implies a set of principles agreed by consensus that can be applied to enhancing health and safety by identifying hazards and reducing associated risks. Standards do not in themselves impose any obligations of adherence. The draft Management Standards represent a logical development of HSE’s existing approach – that is, they should be seen

within the context of statutory regulatory controls for health and safety. We have shown from the literature and from systematic reviews, and from consideration of both epidemiological and biological studies, that there exists sufficient data to establish links between psychosocial risks and poor health and organizational outcomes. However, as in many areas of health and safety, the data are incomplete; there is better evidence for some risk factors and some types of harm than others. Any new approach based on risk assessment and prevention must take these uncertainties into account.

Each of the six Management Standards consists of a series of statements that, together, define a desirable state to be achieved. These are necessarily generic and thus represent a ‘top-down’ approach. The methodology that accompanies the standards allows the user to compare their current situation, using a risk assessment approach, with the desirable state as set out in the six standards.

A key feature of this approach is that user participation and involvement in the risk assessment *process* is crucial and that employee knowledge and experience drives behaviour and, in part, their health. Exposure is evaluated by the degree of consensus, which ensures that the identification of a particular stressor is reliable *for that particular group, at that particular time, and in that particular context*, and gives an indication of the size of the problem and prevents the inclusion of trivial problems. This enables a prioritisation process to be done and actions, based on appropriate interventions, to be taken forward.

This activity is done at the local level and relies almost exclusively in active participation of the work group or team to use the Management Standards process (see Cousins *et al.*, 2004) to diagnose any problem in their specific, local context. This ‘bottom-up’ aspect of the approach is seen as crucial and, again, is advanced on the basis of extensive case study material (Briner *et al.*, 2003). This approach also takes into account the fact that the use of interventions inevitably implies some degree of change. Worker involvement and participation should encompass the bolstering of personal resources (through appropriate training and

personal development) to cope with such change so that anxieties can be allayed and resistance avoided.

In the development and use of the Management Standards, the importance of organizational interventions to reduce risks is explicitly recognized and is congruent with the philosophy of the Management of Health and Safety at Work Regulations (1999). Some have seen the evidence on the effectiveness of organizational interventions as problematic (Reynolds, 2000). Altogether, the studies reported in reviews of the literature convey the impression that work-related interventions do have the potential for positive effects. It is, however, hard to predict specifically which changes are likely to occur and at what point following the initial intervention. But it is reasonable to suggest that the aim is a balance of effects, as in continuous improvement, rather than an expectation of dramatic and uniformly positive impact. Interventions must be seen within the context of what is possible and practicable to do in complex organizations, and, again, this is a strong argument for a ‘bottom-up’ approach.

Overall, the strategy behind the use of the standards and subsequent interventions is that they should be applied to working *populations* rather than being a strategy based on identifying and treating ‘high risk’ individuals that had previously been the most widely used approach. The population strategy attempts to control the determinants of incidence of disease, to lower the mean level of risk factors and to shift the whole population in a favourable direction (from an actual to a desired state). This idea is predicated on the fact that a large number of people exposed to a small risk may generate a greater population burden than a small number exposed to a conspicuous risk and, conversely, if large populations are exposed, a small change in a risk factor may bring substantial improvements in the health of the working population (Rose, 1992). This is the underlying prevention strategy used for devising the Management Standards. Organizational interventions do not need to be demonstrated to be particularly powerful or conspicuous for significant improvements to be obtained, especially where from a public health

perspective criteria for what is acceptable and effective differ from clinical medicine and the requirements of the natural science paradigm (Griffiths, 1999; McPherson, 2001).

Each of the standards has within it a platform statement defining how conformance with the standard is achieved. At the present time this statement refers to the percentage of the workgroup assessed that agree that the particular conditions or states are present or achieved. The justification for the use of a percentage approach is that it allows organisations to judge their current performance across the range of standards and thus allow prioritisation, and it also enables re-assessment following intervention. It recognizes that unanimity of agreement would be impossible to achieve in all instances (in other words all those assessed agreed that the desired state existed). It also links to assessment in that it has been argued that, because most stressors are chronic in nature, both the identification of major stressors and the assessment can best be made in terms of the level of consensus (percentage agreement) on the presence of the stressor. The specification of the percentages is based partly on expert judgement and partly on the use of this threshold approach in other, but similar, spheres of standardisation. Inevitably the actual use of the Management Standards will need to be tailored to the needs of individual users and workplaces, and this requirement is built into our approach. Reaction to this approach to setting standards for work-related stress is addressed in a companion paper (Cousins, *et al.*, 2004).

It is possible that alternative approaches could be adopted based on acceptable ranges, or by using population data for benchmarking purposes. If the percentage concept remains, it is likely that it will be modified following the widespread implementation of the Management Standards and it may lead to industry sector based norms. We believe that this approach is both practical, and valid, in the sense of being evidence-based and will go a long way to meeting HSE's aims of reducing work-related stress.

## APPENDIX 1 THE DRAFT STANDARDS

### Draft Standard – Demands

#### *The organisation has achieved the standard if:*

- at least 85% of employees indicate that they are able to cope with the demands of their jobs; and
  - *systems are in place locally to respond to any individual concerns*

#### **State to be achieved:**

- *The organisation provides employees (including managers) with adequate and achievable demands at work [D.S.1]*
- *Job demands are assessed in terms of quantity, complexity, and intensity and are matched to people's skills and abilities [D.S.2]*
- *Employees have the necessary competencies to be able to carry out the core functions of their job [D.S.3]*
- *Employees who are given high demands are able to have a say over the way the work is undertaken (see standard on Control) [D.S.4]*
- *Employees who are given high demands receive adequate support from their managers and colleagues (see standard on support) [D.S.5]*
- *Repetitive and boring jobs are limited, so far as is reasonably practicable [D.S.6]*
- *Employees are not exposed to a poor physical working environment (the organisation has undertaken a risk assessment to ensure that physical hazards are under appropriate controls) [D.S.7]*
- *Employees are not exposed to physical violence or verbal abuse [D.S.8]*

- *Employees are provided with mechanisms which enable them to raise concerns about health and safety issues (e.g. dangers – real or perceived, working conditions) and working patterns (e.g shift work systems, uncertain hours, etc.) and where necessary appropriate action is taken [D.S.9]*

### **Draft Standard – Control**

#### ***The organisation has achieved the standard if:***

- at least 85% of employees indicate that they are able to have a say about the way they do their work; and
  - *systems are in place locally to respond to any individual concerns*

#### **State to be achieved**

- *The organisation provides employees with the opportunity to have a say about the way their work is undertaken [Co.S.1]*
- *Where possible, The organisation designs work activity so that the pace of the work is rarely driven by an external source (e.g. a machine) [Co.S.2]*
- *Where possible, employees are encouraged to use their skills and initiative to complete tasks [Co.S.3]*
- *Where possible employees are encouraged to develop new skills to help them undertake new and challenging pieces of work [Co.S.4]*
- *Employees receive adequate support when asked to undertake new tasks – employees are supported, even if things go wrong [Co.S.5]*
- *Employees are able to exert a degree of control over when breaks can be taken [Co.S.6]*

- *Employees are able to make suggestions to improve their work environment and these suggestions are given due consideration [Co.S.7]*

### **Draft Standard – Support**

#### ***The organisation has achieved the standard if:***

- at least 85% of employees indicate that they receive adequate information and support from their colleagues and superiors; and
  - *systems are in place locally to respond to any individual concerns*

#### **State to be achieved**

- *The organisation provides employees (including managers) with adequate support at work [S.S.1]*
- *There are systems in place to help employees (including managers) provide adequate support to their staff or colleagues [S.S.2]*
- *Employees know how to call upon support from their managers and colleagues [S.S.3]*
- *Employees are encouraged to seek support at an early stage if they feel as though they are unable to cope [S.S.4]*
- *The organisation has systems to help employees with work-related or home-related issues (e.g. EAPs) and employees are aware of these [S.S.5]*

## Draft Standard – Relationships

### *The organisation has achieved the standard if:*

- at least 65% of employees indicate that they are not subjected to unacceptable behaviours (e.g bullying) at work; and
  - *systems are in place locally to respond to any individual concerns*

### State to be achieved

- *The organisation has in place agreed procedures to effectively prevent, or quickly resolve, conflict at work [Re.S.1]*
- *These procedures are agreed with employees and their representatives and enable employees to confidentially report any concerns they might have [Re.S.2]*
- *The organisation has a policy for dealing with unacceptable behaviour at work. This has been agreed with employees and their representatives [Re.S.3]*
- *The policy for dealing with unacceptable behaviour at work has been widely communicated in the organisation [Re.S.4]*
- *Consideration is given to the way teams are organised to ensure that they are cohesive, have a sound structure, clear leadership and objectives [Re.S.5]*
- *Employees are encouraged to talk to their line manager, employee representative, or external provider about any behaviours that are causing them concern at work [Re.S.6]*
- *Individuals in teams are encouraged to be open and honest with each other and are aware of the penalties associated with unacceptable behaviour [Re.S.7]*

## Draft Standard – Role

### *The organisation has achieved the standard if:*

- at least 65% of employees indicate that they understand their role and responsibilities;
- and
- *systems are in place locally to respond to any individual concerns*

### State to be achieved

- *The organisation ensures that, so far as possible, the demands it places upon employees (including managers) do not conflict [Ro.S.1]*
- *The organisation provides inductions for employees to ensure they understand their role within the organisation [Ro.S.2]*
- *The organisation ensures that employees (including managers) have a clear understanding of their roles and responsibilities in their specific job (this can be achieved through a plan of work) [Ro.S.3]*
- *The organisation ensures that employees understand how their job fits into the overall aims and objectives of the organisation/department/unit [Ro.S.4]*
- *Systems are in place to enable employees to raise concerns about any uncertainties or conflicts they have in their role [Ro.S.5]*
- *Systems are in place to enable employees to raise concerns about any uncertainties or conflicts they have about their responsibilities [Ro.S.6]*

#### Footnote

**Role conflict** exists when – an individual is confronted by conflicting job demands or by doing things he or she does not really want to do, or which they do not believe are part of their job. Workers may often feel themselves torn between two groups of people who demand different types of behaviour, or who believe the job entails different functions

**Role ambiguity** arises when – individuals do not have a clear picture about their work objectives, their co-workers' expectations of them, and the scope and responsibilities of their job. Often this ambiguity results simply because a manager or supervisor has never adequately explained what is required of them or because the job has changed without this being acknowledged in the job description.

## Draft Standard – Change

### *The organisation has achieved the standard if:*

- at least 65% of employees indicate that the organisation engages them frequently when undergoing an organisational change; and
  - *systems are in place locally to respond to any individual concerns*

### State to be achieved

- *The organisation ensures that employees (including managers) understand the reason for proposed changes [Ch.S.1]*
- *Employees receive adequate communication during the change process [Ch.S.2]*
- *The organisation builds adequate employee consultation into its change programme and provides opportunities for employees to comment on the proposals [Ch.S.3]*
- *Employees are made aware of the impact of the change on their jobs [Ch.S.4]*
- *Employees are made aware of the timetable for action, and the proposed first steps of the change process [Ch.S.5]*
- *Employees receive support during the change process [Ch.S.6]*

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