



Guidelines for the Prevention of Obesity at the Workplace

Long Version

January 2009

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CHAPTER 1: INTRODUCTION

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Obesity, a medical condition characterized by excess body fat, has risen to epidemic proportions in Europe and much of the western world and developing countries. Obesity is associated with increased risk for cardiovascular disease, diabetes, stroke, high blood pressure, high cholesterol level, certain forms of cancer, depression, and various other physical, psychological and social morbidities (including increased number of related deaths). In addition, obesity is associated with increased health care costs and reduced work productivity including loss of working days due to related illnesses (Report of the National Task Force on Obesity, 2005).

Adults spend a significant part of their lives at the workplace and its study as an obesogenic environment is important in understanding part of the etiology of the obesity epidemic as well as explore important opportunities for its prevention. Furthermore, workplaces have become increasingly obesogenic requiring more sedentary type of work. There are fewer jobs in sectors requiring high energy expenditure such as industry and manufacturing (which have in any case become highly automated in recent years) and more office type jobs. Employees report fewer opportunities for physical activity and proper nutrition because of high demands from work, frequent overtime, long travelling distances to work and lack of healthy onsite food and physical activity facilities (Report of the National Task Force on Obesity, 2005). Occupational stress, job insecurity and organizational change are also factors proven to influence obesity (Ferrie J. E. (Ed.), 2004; Hannerz, Albertsen, Nielsen, Tuchsén, & Burr, 2004). Consequently, worksites constitute ideal settings for interventions aimed at tackling obesity.

The workplace has been internationally recognized as an appropriate setting for health promotion. The WHO's 2004 Global Strategy on Diet, Physical Activity and Health, as endorsed by the Fifty-seventh World Health Assembly (2004) in resolution WHA57.17, highlights the workplace as important setting for health promotion in point 62: "Workplaces are important settings for health promotion and disease prevention. People need to be given the opportunity to make healthy choices in the workplace in order to reduce their exposure to risk. Further, the cost to employers of morbidity attributed to non-communicable diseases is increasing rapidly. Workplaces should make possible healthy food choices and support and encourage physical activity".

Implementing diet and physical activity interventions in the workplace has the potential of improving the health status of workers, contributes to a positive and caring image of the company, improves staff morale, reduces staff turnover and absenteeism, enhances productivity, as well as reduces sick leave, health plan costs and workers' compensation and disability payments. Through workplace environments, it is possible to influence the health behaviors of large proportions of the population and to conduct repeated multilevel interventions to influence health behaviors.

A healthy, motivated and well-qualified workforce is fundamental to the future social and economic wellbeing of the European Union. There is a growing body of evidence that improvements in workplace health can be key ingredients of business efficiency and competitiveness. In innovative enterprises, the quality of work and the quality of products or services are elements of the same strategy.

Based on these facts this report includes guidelines for the prevention of obesity at the workplace which are based on evidence based reviews of published interventions as well as original research conducted by the institutions participating in the GPOW consortium. The recommendations and guidelines included in the report focus on the obesogenic nature of occupational settings, analyses potentially dangerous sectors for already obese

employees and outlines specific strategies for both employees and employers in order to prevent obesity in the workplace.

1.1. Objectives

- To provide evidence-based recommendations and guidelines about the prevention of obesity at the workplace taking into account the different characteristics of different occupational settings
- To provide a step by step methodology of implementing comprehensive workplace health promotion programs for the prevention of obesity at the workplace
- To identify through a purpose made evaluation tool best practices for the prevention of obesity at the workplace
- To support findings with original research concerning the prevention of obesity at the workplace

1.2. Intended Users

These set of guidelines are intended for the use of *employees* and *employers* of different occupational settings. More specifically, as the topic affects a wide range of stakeholders, intended users are the following:

Stakeholders and Intended Users	
• Employee associations	• European networks
• Employer associations	• Unions
• National ministerial and European policy makers involved in workplace health promotion and occupational health and safety	• University departments of public health, occupational health, occupational medicine, health promotion, etc.
• Ministries of Health	• Ministries of Labour
• Occupational physicians	• Human resource officers
• The scientific community	• NGOs and occupational organizations

1.3. How to use the guidelines

The guidelines on the development of effective health promotion programs aimed at preventing obesity at the workplace, have been developed by the GPOW consortium through an intensive evaluation course and coordination among the key partners. Through the evaluation conducted on identified policies and practices that target obesity at the workplace and taking into consideration the general principles of good workplace health practice, the guidelines tool makes suggestions on which of these are the most successful and promising and thus provides the framework to various stakeholders in designing and implementing effective Workplace Health Promotion Programs (WHPP).

The current report is useful for employers and employees in that it:

- Outlines the most effective interventions for the prevention of obesity at the workplace
- Outlines per work sector the most prevalent obesogenic factors which could affect or lead to obesity
- Provides practical recommendation about specific evidence based strategies per workplace sector which could prevent obesity at the workplace
- Outlines the stages of effective workplace health promotion planning, implementation and evaluation

1.4. Obesity epidemic in the EU

The prevalence of obesity has reached epidemic proportions worldwide. In the European region according to WHO Europe, the prevalence of obesity ranges from 5% to 30% in different countries, while overweight affects 25-75% of the adult population (World Health Organization Europe, 2005). The most alarming fact is the rate with which the epidemic is spreading, with the prevalence having increased three-fold since the 1980s in most European countries. According to a study carried out by Berghöfer and colleagues (2008) and which summarised the available epidemiological data on the prevalence of obesity in European countries the prevalence of obesity in men ranged from 4.0% to

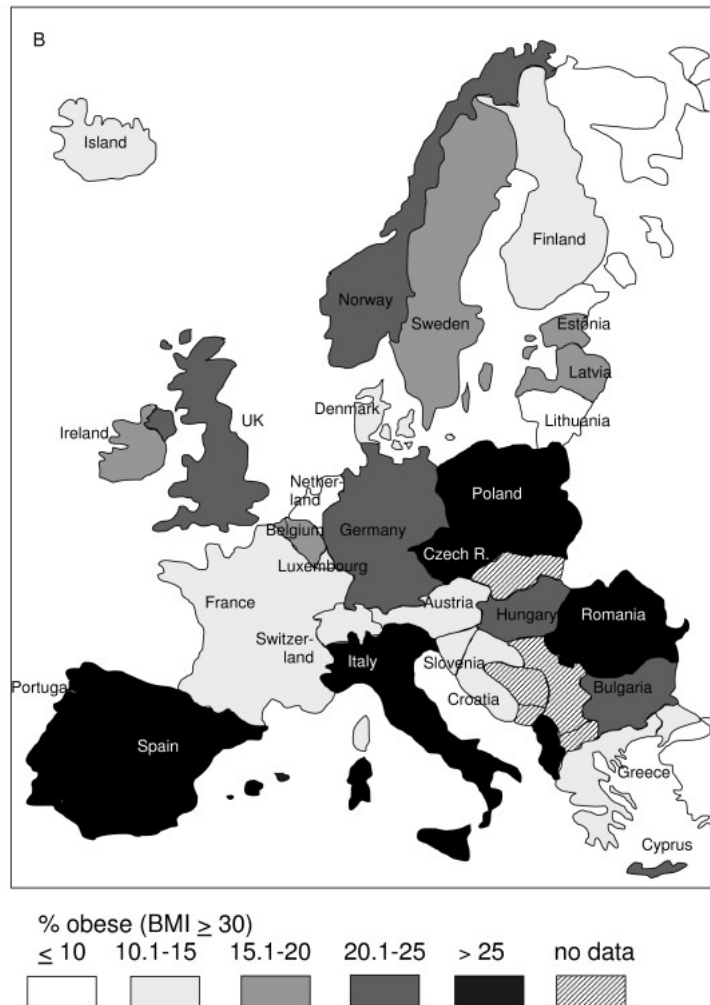
28.3% and in women from 6.0% to 36.5% (Figure 1.1 and 1.2). The regions of Italy and Spain had the highest prevalence in both sexes, as well as in Portugal, Poland, the Czech Republic, Romania and Albania in women. As regards the geographic pattern of obesity, the study found that the prevalence rates are higher in the central, eastern and southern regions of Europe than in the western or northern regions. It should be mentioned here that the data presented by Berghöfer et al. are taken from several epidemiological studies. As some of these studies were conducted in limited geographical areas, they may not reflect national realities in all cases. Therefore, the results should be interpreted with caution.

Figure 1.1: Regional variations in prevalence of obesity (BMI ≥ 30 kg/m²) in European men



(Reprinted from Berghöfer *et al.*, 2008)

Figure 1.2: Regional variations in prevalence of obesity (BMI ≥ 30 kg/m²) in European women



(Reprinted from Berghöfer *et al.*, 2008)

1.5. Considerations concerning weight gain

Diet and energy consumption

Low energy-dense foods (typically foods that are high in fiber and bulky because of their water content) are considered to be protective. Such foods include cereals (grains), pulses (legumes), as well as vegetables and fruits, and are also often micronutrient-dense,

meaning high in vitamins, minerals, and other bioactive compounds. Correspondingly, the Panel judges that high energy-dense foods, in particular sugary drinks and ‘fast foods’, are probably a cause of weight gain, overweight, and obesity. Such foods are typically high in fats and/or sugars, contain little water or dietary fiber, and are frequently low in micronutrients. That low energy-dense foods are probably protective and high energy-dense foods are probably causative; that being breastfed is probably protective; and that sugary drinks, ‘fast foods’, and television watching are probably causative.

Energy consumed in drinks appears to be less easily recognized by appetite control systems than energy in foods. Drinks by their nature are generally high in water and so, compared to foods, have low energy density. However, altering the energy density of drinks, for instance by adding sugar nevertheless does influence the overall amount of energy consumed, just as it does for foods, even though the absolute levels of energy density for drinks are lower than that for foods. For this reason, caloric drinks may play a special role in contributing to positive energy balance.

Gender and children obesity aspects

There is one important gender related aspect of the overweight and obesity prevention programs performed in occupational settings. If we succeed to pursue women to respect basic principles of rational diet we can potentially improve health status of their family’s members.

Of a special interest in this context are their children. Children who are overweight are liable to remain overweight as adults or to become obese (Deckelbaum & Williams, 2001; Guo et al., 1994; Lobstein et al., 2004). The likelihood of an overweight or obese child becoming or remaining obese in adulthood is increased by their degree of body fatness and the age at which they are assessed. Below about the age of 10, the degree of overweight or obesity is only partly related to adult fatness, while by 18 years of age, obesity is largely fixed (Guo et al., 1994). Even when adults are not overweight during

adulthood, they may retain an increased risk of morbidity and mortality which derives from having been overweight during adolescence (Must, 1992).

Over half of overweight 5-10-year-old-children have been reported to have one cardiovascular disease risk factor, such as high blood pressure, hyperlipidaemia or elevated insulin level (Freedman, 1999). Children who are only moderately overweight have elevated low-density lipoprotein cholesterol levels. As obesity increases, diabetes – which was almost unknown in early life until recently – is rising rapidly in children. In some USA areas it was experienced a 10-fold increase in Type 2 diabetes in children in the period between the 1980s and 1990s (Pinhas-Hamiel, 1996). Children who experienced growth restriction or very low-energy diets in very early life (and in uterus), but who then gained weight rapidly in infancy or early childhood, are especially likely to become obese and to develop type 2 diabetes as children and as adults.

Socioeconomic status

Obesity rates vary with socioeconomic status. In a cross-country analysis, as national income rose BMI increased rapidly, then flattened, and eventually declined (Ezzati, 2005). It increased most rapidly until an annual income of about \$US 5000, and peaked at about \$US 12500 for women and \$US 17000 for men. In countries whose gross national product (GNP) per head is less than \$US 2500, obesity in women is more common among those with a high income. But even in a number of countries with GNP per capita below \$US 2500, such as China, more women of lower compared to higher socioeconomic status are overweight. As countries use more money (measured by rises in national GNP), obesity is increasingly becoming a disease of the poor (Monteiro et al., 2004).

Obesity and chronic diseases

Many people who are obese suffer from several chronic diseases, disorders, or disabilities. Obese people and women in particular, are also more likely to experience personal, social, and professional difficulties (Swinburn et al., 2004) as well as reduced opportunities for employment and advancement (Seidell, 2005). Obesity also lowers life

expectancy. It is estimated that at 40 years of age, an obese person can expect to live 6 to 7 years less than someone defined as being of ‘normal’ weight. The UK government has suggested that the average life expectancy of men living in England has fallen because a large part of the population is obese (Peeters et al., 2003; Department of Health, 2004). It is also now generally accepted that, to a lesser degree, overweight short of obesity as usually defined is a cause of many of these pathologies (WHO, 2002). Obesity and hypertension are basic components of metabolic syndrome and they considerably play part in early illnesses and premature deaths. Having in mind the present principles of evidence-based medicine authors tried to collect all relevant data on the prevalence and association of obesity and hypertension in a sizeable group of employees of ŠKODA AUTO for period 2004-2006 before trying to settle in this world famous car producer overweight and obesity prevention (Novotný et al., 2007).

In a group of 19.650 employees aged between 15-62 years (20% females), body mass index (BMI) was measured and hypertension was diagnosed (blood pressure $\geq 140/90$ mm Hg and/or under medication). For the purpose of analysis BMI was categorized as follows: normal BMI < 25 , overweight 25-29.99 and obesity BMI ≥ 30 . The effect of confounding factors, age and sex, in the analysis was reduced by stratification and adjustment in logistic regression. The measure of association was Odds Ratio (OR) 95% confidence interval. Analysis of variance and linear regression were used in the evaluation of continuous variables.

Females were older (median age 39 years, 32 years for males). Prevalence of overweight in males was 39.4% and 27.9% in females and obesity 15.7 and 17.4 respectively. There was strong correlation between BMI and age ($R^2 = 0.14$). Prevalence of hypertension double in consecutive decades: At the age between 50-62 years it reached 27.1% in males and 19.7 in females. Only 14.7% of hypertensive subjects had normal BMI. In stratified analysis according to age, frequency of hypertension was higher in obese than in those with BMI < 30 : Summary OR (SOR) 5.2 (4.6-5.7). Also combined category of obesity and overweight was strongly connected to hypertension than BMI < 25 : SOR 5.8 (5.1-6.7). Stratification according to decades of ages did not rule out distinct association between

hypertension and obesity as compared to BMI<30: SOR 3.5 (3.1-3.9). In logistic model against persons who are younger than 30 years and BMI<25 association between hypertension and decades of ages rose sharply – at the age above 50 with overweight: OR 10.4 (8.9-12.1) and with obesity 20.4 (17.3-24.0).

Presented results support generally accepted hypothesis that reducing cases of high prevalent overweight and obesity, especially by prevention of weight gain, may contribute in reducing blood pressure and hence circumscribe health risks associated with combined effects of obesity and hypertension. There were good arguments to start a health promotion activities in the industrial enterprise and more over, they can be of help when after several years lasting efforts will be time to evaluate their effectively (Novotny et al., 2007).

1.6. Health risks for employees

It is evident that obesity poses a significant health risk and is associated with premature mortality and increased morbidity. Obesity is a risk factor for a number of diseases (Jain, 2004; U.S. Department of Health and Human Services [US DHHS], 2001), including cardiovascular disease and cancer and reduces life expectancy on average between 2 and 13 years (Swanton & Frost, 2007). The associated problems of adult obesity are illustrated in Table 1.1

Table 1.1 Relative Risks of Health Problems Associated with Obesity

Greatly increased risk (Relative risk greater than 3)	Moderately increased risk (Relative risk 2-3)
<ul style="list-style-type: none"> • Type 2 diabetes • Insulin resistance • Gallbladder disease • Dyslipidaemia • Breathlessness • Sleep apnoea 	<ul style="list-style-type: none"> • Coronary heart disease • Hypertension • Stroke • Osteoarthritis (Knees) • Hyperuricaemia and gout • Psychological factors

Slightly increased risk

(Relative risk 1-2)

- **Cancer (colon cancer, breast cancer in postmenopausal women, endometrial cancer)**
- **Reproductive hormone abnormalities**
- **Polycystic ovarian syndrome**
- **Impaired fertility**
- **Low back pain**
- **Anaesthetic risk**
- **Fetal defects associated with maternal obesity**

Adapted from Swanton & Frost (2007) (*All RRs are approximate. The RR indicates the risk measured against that of a non-obese person of the same age and sex.*)

Obesity, among others, is a risk factor for **breathing sleep disturbances**. They can produce work accidents especially in that job where high vigilance (drivers or shift-worker) is required. Counselling of Occupational Medicine Physician with the Center for Sleep Disorders was useful to direct the action of Competent Doctor (Tobia et al., 2005).

In addition to its public health consequences, obesity poses a great burden on the economy (*Questions and answers on the EU approach to tackling obesity*, 2005). With its increasing rates, obesity and its related health conditions directly damage the health and well-being of the current workforce while concerns are raised for the problems employers will likely confront within the future workforce, based on the significant increase of obesity among children and adolescents (Caban et al., 2005).

Laitinen and colleagues (2005) studied how BMI changes between the ages of 14 and 31 and how BMI and waist-to-hip ratio at 31 years are related with weakly perceived work ability at 31 years. The data consisted of a cohort of people born in 1966 in Northern Finland. The results indicated that low work ability at 31 years had a U-shaped association with high BMI at 14 years as also to high BMI at 31 years, except in obese

males. Among men low work ability had also a U-shaped association with hip-to-waist ratio. Among women this association was almost linear. Low work ability had also connection among smokers and people with low level of education. The study suggests that work ability, health habits and anthropometric measures should be evaluated in young workers continuously.

According to the study by Laaksonen and colleagues (2007) obesity can increase the risk of sickness absence. The study examined the risk for sickness absence caused by obesity. The study also examined if sickness absence could be explained with obesity-related disorders, general health status and poor working conditions. The study was performed among the employees of the city of Helsinki between 2000 and 2002. The sickness absence records were followed until 2004. The results showed women and men with higher relative weight to have significantly more short and long periods of sick days during the observation time. Poor working conditions were not found to have an effect on the association between BMI and sickness absence.

According to the study of Visscher et al. (2004), obese persons were more likely to have unhealthy life-years than normal-weight persons. The researchers measured the unhealthy years caused by obesity among a Finnish population in a follow-up of 15 years. The health problems related to obesity that can cause unhealthy life-years were defined as premature work disability, heart disease and a need for long term medication. The findings showed that obese men had 0.63 more years of work disability, 0.36 more years of coronary heart disease and 1.68 more years of long-term medication than men with a normal weight. Similarly, obese women had 0.52, 0.46 and 1.49 more years of these health problems than women with a normal weight. Conclusions claim that further increase in obesity might lead to an increase in unhealthy life-years and to both direct and indirect health care costs.

According to a study carried out by UnumProvident Corporation (2004) in the USA, short-term disability claims attributed to obesity have increased 10 times over the past decade, with obesity-related disabilities costing employers an average of \$8720 per

employee every year. It is estimated that obesity costs American businesses more than 75 billion dollars annually while it has been positively associated with increased health care expenditure, absenteeism and decreased productivity (Anderson et al., 2000; Bungum, Satterwhite, Jackson, & Morrow, 2003; Burton, Chen, Schultz, & Edington, 1998). Table 2 illustrates examples of direct costs in the EU compared to the USA attributable to obesity.

Table 1.2: Examples of Direct Costs in EU Compared to the USA

Country	Direct costs (millions)	% health expenditure
England (1995)	816 (+3,270 indirect) Euro	1.5%
France (1992)	640-1,320	1.5%
Germany (1996)	10,600	
Portugal (1996)	230	3.5%
Netherlands (1981-89)	454	4%
USA	70,000 US	7%

Modified from IASO (IOTF collated data). Converted Jan. 2002 – unadjusted for inflation

Current physical activity levels across all levels of work are generally low: in 2002, half of the respondents in an EU survey reported that they took little or no physical activity during work (European Opinion Research Group EEIG, 2003). Particularly, employees over the age of 45 year old and women reported very low percentages of physical activity at work compared with younger and male employees.

1.7. Benefits of Workplace Health Promotion Programs

Workplaces present an ideal setting and provide unique opportunities for health promotion initiatives and offer a number of advantages over other approaches (Aldana et al., 2006; Bull, Gillette, Glasgow, & Estabrooks, 2003; Engbers, van Poppel, Chin, & van Mechelen, 2005).

Given that most of the adult population is employed (Atlantis, Chow, Kirby, & Fiatarone Singh, 2006; Centers for Disease Control and Prevention [CDC] 2005; Emmons, Linnan, Shadel, Marcus, & Abrams, 1999; Sorensen et al., 1999), workplaces present a logical and natural setting to implement initiatives aimed at reducing the prevalence and implications of overweight and obesity (CDC 2005; Chu, Driscoll, & Dwyer, 1997; Jackson et al., 2002). They offer the opportunity to reach a large percentage of the population (Atlantis et al., 2006; Bull et al., 2003; Emmons et al., 1999; Glasgow, McCaul, & Fisher, 1993; Sorensen, Emmons, Hunt, & Johnston, 1998; Sorensen et al., 1996) who constitute a relatively stable population (Cohen, Stunkard, & Felix, 1987; Harden, Peersman, Oliver, Mauthner, & Oakley, 1999), and thus are an efficient means of improving the health of a large group of people (White & Jacques, 2007). They also encourage more individuals to join and continue in health promotion programs (Cohen et al., 1987). Thus, worksites represent a somewhat captive environment (Aldana et al., 2006, CDC 2005) in which the population could be easily contacted for recruitment and program implementation (Forster, Jeffery, Sullivan, & Snell, 1985; Glanz & Kristal, 2002).

Interventions in worksites could also assist in attracting individuals in need who would normally be unwilling or unable to seek professional treatment or engage in any clinical weight control therapy and those at different stages of readiness (Forster et al., 1985; Jeffery et al., 1993; Jeffery, Forster, & Snell, 1985; Sorensen et al., 1999). Overall, workplaces offer convenient access and treatment for the employees (Atlantis et al., 2006; Forster et al., 1985; Glanz & Kristal, 2002; Harden et al., 1999).

As individuals generally spend at least half of their non-sleeping hours at work (Aldana et al., 2006; Engbers et al., 2005; Goetzel & Ozminkowski, 2006), worksite based health promotion interventions are accessible and convenient for the working participants (Engbers et al., 2005; Sorensen et al., 1996; White & Jacques, 2007). They may be more effective than interventions in other settings because participants return repeatedly to the same site (Irvine, Ary, Grove, & Gilfillan-Morton, 2004) and are also better incorporated to the daily routine of the participants (Jeffery et al., 1985). In addition, other worksite health promotion programs may be already conducted (Irvine et al., 2004).

Worksites also offer the potential of social support and influence from co-workers and the management, a key determinant in any behaviour modification attempt (Aldana et al., 2006; Forster et al., 1985; Glanz & Kristal, 2002; Goetzel & Ozminkowski, 2006; Harden et al., 1999; Jeffery et al., 1993; Tilley et al., 1999). They also provide opportunities for environmental/policy and organizational changes to foster individual healthy practices (Bull et al., 2003; C D C2005; Glanz & Kristal, 2002; Sorensen et al., 1999; Tilley et al., 1999). Thus, the social and organizational characteristics of worksites may act to enhance the effectiveness of an intervention program (Forster et al., 1985).

Worksite programs are a relatively low-cost (Forster et al., 1985) and can be less expensive compared to programs offered elsewhere (Glanz & Kristal, 2002; Kaplan, Brinkman-Kaplan, & Framer, 2002; White & Jacques, 2007). They also have the potential to reduce absenteeism and health care costs which translate into savings for employers (Forster et al., 1985; Jeffery et al., 1993). In his review of workplace health promotion economic return studies, Chapman (2005) concluded that workplace programs result in 25-30% reduction in medical and absenteeism costs over an average period of about 3.6 years. This could act as an incentive towards the management for ongoing support of such programs (CDC 2005). Goetzel and Ozminkowski (2006) and Goetzel (2007) suggested several reasons as to why employers should invest in health promotion programs for their workers (Table 1.3).

Table 1.3 Why Should Employers Invest in the Health of the Employees

1. Many of the diseases and disorders from which employees suffer are preventable.
2. Modifiable health risk factors are precursors to a large number of diseases and disorders.
3. Many modifiable health risks are associated with increased healthcare costs and reduced worker productivity, within a relatively short-time window.
4. Modifiable health risks can be improved through workplace-sponsored health promotion and disease prevention programs.
5. Improvements in the health risk profile of a population can lead to reductions in healthcare costs and absenteeism and improve worker productivity.
6. Well-designed and well-implemented worksite health promotion and disease prevention programs can be cost-beneficial - they can save more money than they cost, thus producing a positive return on investment (ROI).

Adapted from Goetzel and Ozminkowski (2006) and Goetzel (2007)

Another advantage of using workplaces as a setting for health promotion is that the evaluation of the effectiveness of workplace health programs is often practical as there are usually available systems of data collection and analysis (Goetzel & Ozminkowski, 2006). There is also the opportunity for follow-up, monitoring and evaluation of the participants (Anderson, Palombo, & Earl, 1998; Glanz & Kristal, 2002)).

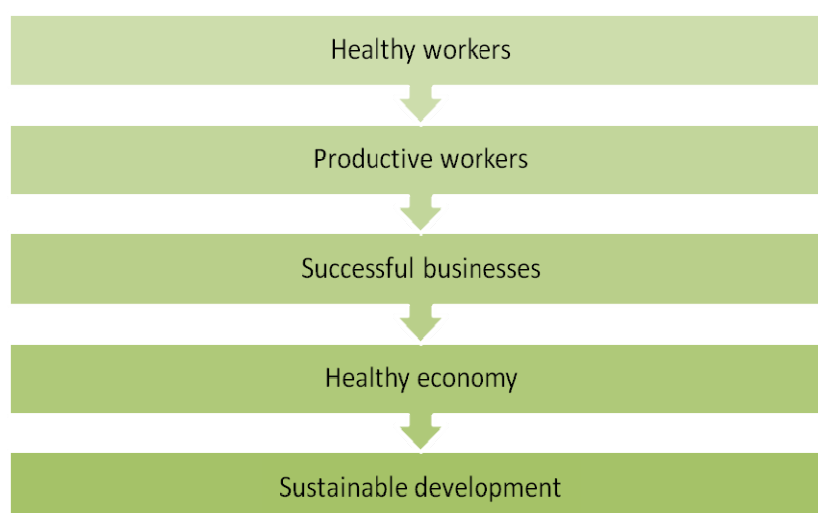
In conclusion, a healthy workplace could have beneficial effects not only for the employees but also on the organization as a whole (Table 1.4).

Table 1.4 Benefits of a Healthy Workplace

To the organization	To the employee
A well-managed health and safety program	A safe and healthy work environment
A positive and caring image	Enhanced self-esteem
Improved staff morale	Reduced stress
Reduced staff turnover	Improve morale
Reduced absenteeism	Increased job satisfaction
Increased productivity	Increased skills for health protection
Reduced healthcare/insurance costs	Improved health
Reduced risk of fines and litigation	A healthier family and community

Like other settings that have been used as the basis to initiate health promotion programs (schools, hospitals), worksites could serve as a gateway to improve the health and wellness of the employees, their families, communities and societies as a whole (WHO 1999). Consequently, as shown in Table 1.5, healthy workers could become the foundation for a growing economy and sustainable development (WHO 1999).

Table 1.5 Work, Health and Development



Reprinted from WHO Regional Office for the Western Pacific (1999)

1.8. Theoretical framework for obesity interventions at the workplace: guiding principles, theoretical models

The application of behavioural science theories is basic practice in workplace health promotion. Generally theories are important in guiding HP work and advancing understanding of the theoretical foundations of health behaviour (Emmanuel 2001, Glanz & Kristal, 2002). According to the National Cancer Institute (2005), a theory is defined as: “A systematic way of understanding events or situations. It is a set of concepts, definitions, and propositions that explain or predict these events or situations by illustrating the relationships between variables”.

The most effective workplace health promotion programs have used theoretically based intervention strategies and their program materials were shaped by several theoretical constructs, the most common of which are the transtheoretical model, the social learning model, the community organization theory and the diffusion of innovations theory.

1.8.1. Ecological approach

It is widely believed that in order for health promotion strategies to be effective in changing health behaviour and sustaining change, they should embrace an ecological perspective, including not only education or communication but also environmental modifications. That is, interventions should not only focus on individuals but should rather target interpersonal, organizational, social and environmental factors affecting health behaviour (Anderson et al., 1998; Engbers et al., 2005; Harden et al., 1999; Shain & Kramer, 2004; Unge, Schelp, & Källestål, 2004). In parallel, it is suggested that workplace health promotion programs that employ an ecological perspective, taking into consideration multiple levels of influence that determine participation (Linnan, Sorensen, Colditz, Klar, & Emmons, 2001), are most likely to improve participation rates (Glasgow et al., 1993) and yield effective outcomes on the health status of the employees.

1.8.2. Empowerment and Participation

Empowerment: Another feature essential in workplace health promotion is empowerment, which aims to enhance vulnerable individuals' and groups' ability to influence social and economic conditions and to strengthen their social skills that affect their health behaviour choices (Nutbeam, 1998). In this way, people become more capable of shaping their own health and as they gain more control over their own actions and decisions their health is improved (Arneson & Ekberg, 2005).

Participation: Employee participation becomes a desirable additional element in workplace health promotion as it can stimulate empowerment (Arneson & Ekberg, 2005, Brookings & Bolton, 2000). It is also considered an important guiding principle of health education and behaviour modification (Glasgow et al., 1993). In their review, Glasgow and colleagues (1993) concluded that participation is a crucial process and an outcome

measure that should be reported routinely. They also recommended that more studies should attempt to increase participation rates by manipulating parameters that affect participation.

The Setting: The significance of the setting has been acknowledged as another important characteristic pertaining to the success of a wellness program (Arneson & Ekberg, 2005; WHO 1986) and it is thought to be a powerful methodological tool for health promotion (Goodstadt et al., 2001). A ‘setting for health’ has been defined by WHO (Nutbeam, 1998; WHO, 1998) as ‘the place or social context in which people engage in daily activities in which environmental, organizational and personal factors interact to affect health and wellbeing’. A setting is also ‘where people actively use and shape the environment and thus create or solve problems relating to health’ (Nutbeam, 1998). That is, health promotion interventions should be created in the context of being an integral part of the everyday work practice (WHO, 1986) rather than targeting the individual level only.

1.8.3. Theoretical Models

The application of behavioural science theories is common in workplace health promotion. Generally theories are important in guiding our work and advancing our understanding of the theoretical foundations of health behaviour (Emmanuel 2001, Glanz & Kristal, 2002). The most effective workplace health promotion programs have used theoretically based intervention strategies and their program materials were shaped by several theoretical constructs, the most common of which are the transtheoretical model, the social learning model, the community organization theory and the diffusion of innovations theory.

Transtheoretical Model – Stage-Based Theories

The transtheoretical model of behaviour change is considered a theoretical model of behaviour change and has been used as a foundation for the development of successful interventions targeting health behaviour change.

This model recognises that in the attempt to change a specific behaviour an individual progresses through a series of **stages** (Velicer, Prochaska, Fava, Norman, & Redding, 1998). More specifically, the model suggests that there exist five stages in the process of changing behaviour of which, the first three are motivational and the last two are actional ones (Povey, Conner, Sparks, James, & Shepherd, 1999); the Stages of Change constitute the focal organizing construct of the model and the sequence of steps in behaviour change is outlined below (Glanz & Kristal, 2002; Irvine et al., 2004; Povey et al., 1999; Velicer et al., 1998):

1. **Precontemplation:** The individual does not recognise the need for or has any intention to change and has no plans of changing his/her behaviour in the foreseeable future (usually measured as the next six months). People at this stage are suggested to be not properly informed (un- or under- informed) in regards to the consequences of their behaviour.
2. **Contemplation:** The individual recognises that a problem exists in relation to his/her behaviour and is thinking about changing it in the next 6 months although he/she has not made any change attempts.
3. **Preparation:** The individual is planning to take action in the immediate future (usually measured as the next month) and have typically made attempts to change in the past year.
4. **Action:** The individual has actually adopted new habits within the past 6 months.
5. **Maintenance:** The individual is attempting to maintain the new, healthier behaviour and is working to prevent relapse.

The transtheoretical model is becoming increasingly common in terms of developing, implementing and evaluating workplace health promotion programs. It recognises that the readiness of individuals to change health behaviour varies and therefore there is a need to tailor interventions to the employees' stage of readiness to change (Cook, Billings, Hersch, Back, & Hendrickson, 2007; Glanz & Kristal, 2002). This could be done either at a group or at workplace level (Glanz et al., 1998, cited in Glanz & Kristal, 2002) or at the individual level within the worksite (Tilley et al., 1997 cited in Glanz & Kristal, 2002).

Social Learning Theory

Several worksite intervention programs have applied constructs from Bandura's **social cognitive theory** (1986, 1977) which supports that people are more likely to change if they feel self-confident in regards to their ability to carry out successfully the behaviour change (Bandura, 1986). This could be achieved by providing individuals with the required skills, knowledge and resources and ensuring that they are surrounded by a supportive environment (Emmanuel 2001), which in turn will mediate the initiation and maintenance of the specific behaviour modification.

According to the social cognitive theory the causal structure involved in health related behaviour includes the following:

- **Self efficacy**: the belief that changes can be brought about through ones' own actions. If this belief is absent it is considered a personal barrier.
- Type of **goals** people set for themselves
- Anticipated **outcome expectations** of a behaviour
- Perceived **environmental barriers and enablers**

Concluding, the theory emphasizes that people learn by observing behaviours, attitudes and behavioural outcomes of others (Bandura 1977).

Community Organization Theory

Community organization theories in their examination of health determinants take into consideration the wider social system including (a) the workplace environment (b) the formal or informal structures that surround the employee and (c) public policy (government and state institutions). Community-level theories offer a framework for implementing multi-dimensional interventions which can be particularly effective in a workplace and easily integrated with Social Cognitive Theory (National Cancer Institute, 2005).

A large number of studies emphasize the importance of combining environmental and individual level approaches in developing strategies whilst such studies report better

results in reaching their objectives (Chambers, Turner, & Hunt, 2007; Engbers et al., 2005; Hunt, Lederman, Potter, Stoddard, & Sorensen, 2000; Kwak et al., 2007; Makrides, Heath, Farquharson, & Veinot, 2007; Marshall, 2004; Matson-Koffman, Brownstein, Neiner, & Greaney, 2005; McMahon, Kelleher, Helly, & Duffy, 2002; Pratt et al., 2007).

Diffusion of Innovations Theory

Rogers (1995) defines diffusion as the ‘process by which an innovation is communicated through certain channels over time among the members of a social system and the spread of a new idea from its source of invention or creation to its ultimate users or adopters’. The diffusion of the innovations model can be helpful in developing successful workplace health promotion programs and in ensuring that they are optimally disseminated in the social environment of the workplace.

The innovation-decision process consists of 5 stages (Orr, 2003; Rogers, 1995):

1. **Knowledge** – the individual becomes aware of an innovation.
2. **Persuasion** – the person forms a positive or negative attitude toward the innovation.
3. **Decision** – the person reaches a decision to adopt or reject the innovation.
4. **Implementation** – the individual implements the new idea.
5. **Confirmation** – the person assesses the outcome of the innovation-related decision.

The diffusion of innovations theory focuses on the needs, attitudes and values of the target population (the adopters), as well as the factors enhancing or inhibiting the adoption of behaviour (Gates, Brehm, Hutton, Singler, & Poeppelman, 2006). One of the most important characteristics of this theory is that the innovation-decision of most individuals belonging in a social structure is being greatly affected by the innovation-decision of the other members belonging to the same system (Orr, 2003).

CHAPTER 2: THE OBESOGENIC WORKPLACE ENVIRONMENT

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2.1. Workplace obesogenic factors

Modern workplaces have become increasingly obesogenic both because of the changing nature of work (more sedentary type of work even in industry and manufacturing jobs which have become highly automated) and because of working conditions such as long working hours. Workplaces can contribute to the increase of obesity through the pressures and demands of work which may influence eating habits and activity patterns (Schulte *et al.*, 2007). Employees report fewer opportunities for physical activity and correct nutrition because of high demands from work, frequent overtime, long travelling distances to work and lack of healthy onsite food and physical activity facilities (Report of the National Task Force on Obesity, 2005). Occupational stress, job insecurity and organizational change are also factors which influence obesity outcomes (The Whitehall II Study, 2004; Hannerz, Albertsen, Nielsen, Tuchsén, & Burr, 2004; Yamada *et al.*, 2002). Many of the consequences of these workplace obesogenic factors extend beyond individual employees affecting the everyday life of their families for example by allowing less time for cooking and eating at home, less time for family outings etc.

In order to identify and record the workplace factors that may lead or contribute to the emergence of obesity, the GPOW consortium conducted a small scale survey using a purpose made questionnaire developed to cover this specific need. The questionnaire consisted of the following 28 workplace obesogenic factors:

- Easy access to unhealthy food options – i.e. fast food, takeaways, vending machines
- Lack of facilities for preparing food i.e. Microwave oven, cooker etc

- Lack of facilities for storing healthy food – i.e. refrigerator
- Lack of healthy food options in canteen
- Lack of nutritional information in canteen or vending machine food
- Lack of break- lunch areas causing employees to eat at their workstations, desks, cars etc
- Occupational stress
- Long working hours
- Shift work
- Continuous sedentary working behavior - spending a lot of time seated
- Work schedule - not allowing enough time for lunch breaks
- Lack of onsite physical activity facilities
- Stairs at the workplace not accessible and not properly illuminated
- Continuous sedentary working behavior - spending a lot of time seated
- Work schedule - not allowing enough time for lunch breaks
- Lack of cycle storage facilities
- Active access to the workplace discouraged by bad public transportation system
- Limited availability of nearby (and safe) recreational areas, green spaces, parks, sports grounds etc
- Lack of management commitment to promoting workplace wellness
- Lack of a workplace health promotion policy
- Lack of staff to implement workplace health promotion activities at the workplace
- Lack of workplace health promotion programs and interventions promoting healthy nutrition and physical activity
- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity
- Low employee participation in workplace health promotion programs
- Lack of incentives for employees participating in obesity prevention programs
- High cost to employers for providing physical activity opportunities
- Not enough space -at the workplace - high levels of congestion at the workplace
- "Pressure to look slim and well-trained" at work

Experts were asked to rate how relevant these factors are (using a scale from 1= strongly irrelevant to 5= strongly relevant) to different occupational categories. The 14 occupational categories/sectors were based on the **International Standard Classification of Occupations** (ISCO-2008), which is a classification structure of the International Labour Organization (ILO) and are the following:

- Managers
- Chief executives, senior officials, legislators
- Professionals – medical, business, and administration, other teaching professionals
- Science, engineering, architecture and computing
- Primary and pre primary teaching professionals
- Nursing and midwifery professionals
- Technicians and associate professionals
- Clerical support workers
- Service and sales workers
- Agricultural, forestry and fishery workers
- Craft and related trades – builders, electricians, handicraft, etc
- Plant and machine operators, assemblers, drivers
- Elementary occupations – cleaners, labourers, messengers
- Armed forces occupations

A detailed description of the sub categories of each occupational sector as well as the questionnaire can be found in Annex 1.

In total 41 experts from each country of the consortium completed the questionnaire. Each partner was asked to identify experts from relevant professional categories. The experts who participated in the survey were scientists from relevant fields. More specifically they were: occupational physicians, nutritionists, pharmacists, medical doctors, labour inspectors, trade unions representatives, obesity physicians, researchers specialized in nutrition, researchers specialized in social sciences, public health specialists, researchers specialized in political sciences, industrial hygiene specialist,

occupational health specialists, health promotion specialists, occupational health nurses, dietitians and psychologists.

The completed questionnaires were analyzed by a statistician using the SPSS 16.0 statistical program. The statistical method used was frequency analysis. Frequency distributions show the percentage of observations which means the number of times the observations occur in the data. With this method we can convert the raw data into useful information for statistical analysis. The frequency distribution of an obesogenic factor in a population shows how many experts evaluate the certain factor and in what scale (1: strongly irrelevant, 2: irrelevant, 3: neither irrelevant nor relevant, 4: relevant and 5: strongly relevant). The most frequent answer gives us the result for each case. For example, in Table 2.1a the first result 5 means that the manager's more frequently answer for the factor "easy access to unhealthy food options" is considered strongly relevant.

The small sample number poses limitations on the reliability and validity of the results. Findings should not be generalized to the wider European population but should be considered as indicative of the situation and examined in more detail for each occupational sector. Furthermore, it must be noted that the examination of an obesogenic environment should include the views of employees which have not been considered in this particular survey.

For each of the following occupational categories we present the most important obesogenic factors as were assessed by experts.

Managers: the main obesogenic factors as suggested by the experts are the following:

- Easy access to unhealthy food options – i.e. fast food, takeaways, vending machines
- Occupational stress
- Long working hours
- Continuous sedentary working behavior

- Inflexible work schedule – very short or no lunch breaks
- Lack of onsite physical activity facilities
- Lack of workplace health promotion programs and interventions promoting healthy nutrition and physical activity
- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity
- Lack of incentives for employees participating in obesity prevention programs
- "Pressure to look slim and well-trained" at work.

Chief executives, senior officials and legislators: face the same obesogenic factors as managers, in addition to:

- Limited availability of nearby (and safe) recreational areas, green spaces, parks, sports grounds etc.

Professionals – medical, business and administration, medical and other teaching professionals: face the following obesogenic factors:

- Lack of facilities for storing healthy food – i.e. refrigerator
- Occupational stress
- Long working hours
- Continuous sedentary working behavior – spending a lot of time seated
- Inflexible work schedule – very short or no lunch breaks
- Lack of onsite physical activity facilities
- Limited availability of nearby (and safe) recreational areas, green spaces, parks, sports grounds etc
- Lack of management commitment to promoting workplace wellness
- Limited financial support from management to health promotion programs
- "Pressure to look slim and well-trained" at work

Science, engineering, architecture and computing professionals: The main obesogenic are:

- Continuous sedentary working behavior – spending a lot of time seated

- Inflexible work schedule – very short or no lunch breaks
- Limited availability of nearby (and safe) recreational areas, green spaces, parks, sports grounds etc
- Lack of management commitment to promoting workplace wellness
- Limited financial support from management to health promotion programs
- Lack of a workplace health promotion policy
- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity
- Not enough space – at the workplace – high levels of congestion at the workplace

Primary and pre primary teaching professionals: the main obesogenic factors are:

- Lack of break – lunch areas causing employees to eat at their workstations, desks, cars etc
- Occupational stress
- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity
- Low employee participation in workplace health promotion programs
- Not enough space – at the workplace – high levels of congestion at the workplace
- "Pressure to look slim and well-trained" at work

Nursing and midwifery professionals:

- Lack of healthy food options in canteen
- Occupational stress
- Long working hours
- Shift work
- Lack of onsite physical activity facilities
- Limited availability of nearby (and safe) recreational areas, green spaces, parks, sports grounds etc
- Lack of management commitment to promoting workplace wellness
- Limited financial support from management to health promotion programs
- Lack of a workplace health promotion policy

- Lack of staff to implement workplace health promotion activities at the workplace
- Low employee participation in workplace health promotion programs
- Not enough space – at the workplace – high levels of congestion at the workplace

Technicians and associate professionals:

- Lack of break – lunch areas causing employees to eat at their workstations, desks, cars etc
- Lack of management commitment to promoting workplace wellness
- Lack of a workplace health promotion policy
- Lack of staff to implement workplace health promotion activities at the workplace
- Lack of workplace health promotion programs and interventions promoting healthy nutrition and physical activity
- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity

Clerical support workers:

- Easy access to unhealthy food options – i.e. fast food, takeaways, vending machines
- Lack of facilities for storing healthy food – i.e. refrigerator
- Occupational stress
- Continuous sedentary working behavior – spending a lot of time seated
- Limited availability of nearby (and safe) recreational areas, green spaces, parks, sports grounds etc
- Lack of management commitment to promoting workplace wellness
- Lack of a workplace health promotion policy
- Lack of staff to implement workplace health promotion activities at the workplace
- Lack of workplace health promotion programs and interventions promoting healthy nutrition and physical activity
- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity
- High cost to employers for providing physical activity opportunities

- Not enough space – at the workplace – high levels of congestion at the workplace
- "Pressure to look slim and well-trained" at work

Service and sales workers:

- Easy access to unhealthy food options – i.e. fast food, takeaways, vending machines
- Lack of facilities for preparing food – i.e. microwave oven, cooker etc
- Lack of facilities for storing healthy food – i.e. refrigerator
- Lack of healthy food options in canteen
- Lack of break – lunch areas causing employees to eat at their workstations, desks, cars etc
- Continuous sedentary working behavior – spending a lot of time seated
- Lack of onsite lockers and showers
- Lack of cycle storage facilities
- Limited availability of nearby (and safe) recreational areas, green spaces, parks, sports grounds etc
- Lack of management commitment to promoting workplace wellness
- Limited financial support from management to health promotion programs
- Lack of a workplace health promotion policy
- Lack of staff to implement workplace health promotion activities at the workplace
- Lack of workplace health promotion programs and interventions promoting healthy nutrition and physical activity
- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity
- Low employee participation in workplace health promotion programs
- Lack of incentives for employees participating in obesity prevention programs
- Not enough space – at the workplace – high levels of congestion at the workplace
- "Pressure to look slim and well-trained" at work

Agricultural, forestry and fishery workers:

- Lack of facilities for preparing food – i.e. microwave oven, cooker etc

- Lack of facilities for storing healthy food – i.e. refrigerator
- Lack of healthy food options in canteen
- Lack of nutritional information in canteen or vending machine food
- Lack of break – lunch areas causing employees to eat at their workstations, desks, cars etc
- Lack of onsite lockers and showers
- Lack of management commitment to promoting workplace wellness
- Limited financial support from management to health promotion programs
- Lack of a workplace health promotion policy
- Lack of staff to implement workplace health promotion activities at the workplace
- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity
- Low employee participation in workplace health promotion programs

Craft and related trades - builders, electricians, handicraft:

- Lack of facilities for preparing food – i.e. microwave oven, cooker etc
- Lack of facilities for storing healthy food – i.e. refrigerator
- Lack of onsite physical activity facilities
- Lack of onsite lockers and showers
- Lack of management commitment to promoting workplace wellness
- Limited financial support from management to health promotion programs
- Lack of a workplace health promotion policy
- Lack of staff to implement workplace health promotion activities at the workplace
- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity
- High cost to employers for providing physical activity opportunities

Plant and machine operators, assemblers and drivers:

- Lack of facilities for storing healthy food – i.e. refrigerator
- Lack of nutritional information in canteen or vending machine food

- Lack of break – lunch areas causing employees to eat at their workstations, desks, cars etc
- Shift work
- Continuous sedentary working behavior – spending a lot of time seated
- Limited availability of nearby (and safe) recreational areas, green spaces, parks, sports grounds etc
- Lack of management commitment to promoting workplace wellness
- Limited financial support from management to health promotion programs
- Lack of a workplace health promotion policy
- Lack of staff to implement workplace health promotion activities at the workplace
- Lack of workplace health promotion programs and interventions promoting healthy nutrition and physical activity
- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity
- Low employee participation in workplace health promotion programs
- Lack of incentives for employees participating in obesity prevention programs

Cleaners, laborers, messengers:

- Easy access to unhealthy food options – i.e. fast food, takeaways, vending machines
- Lack of healthy food options in canteen
- Lack of break – lunch areas causing employees to eat at their workstations, desks, cars etc
- Lack of onsite physical activity facilities
- Lack of management commitment to promoting workplace wellness
- Limited financial support from management to health promotion programs
- Lack of staff to implement workplace health promotion activities at the workplace
- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity
- Not enough space – at the workplace – high levels of congestion at the workplace

Armed forces occupations:

- Lack of healthy food options in canteen
- Occupational stress
- Shift work
- Limited financial support from management to health promotion programs

Table 2.1a and 2.1b show a summary of all obesogenic factors as evaluated by the GPOW experts.

Experts were asked to assess each factor as:

- 1: strongly irrelevant
- 2: irrelevant
- 3: neither irrelevant nor relevant
- 4: relevant
- 5: strongly relevant

Table 2.1a: Obesogenic factors for different occupational settings (International Standard Classification of Occupations (ISCO-2008))

Obesogenic Factors	Managers	Chief executives, senior officials, legislators	Professionals - medical, business and administration, medical , other teaching professionals	Science, engineering , architecture and computing	Primary and pre primary teaching professionals	Nursing and midwifery professionals	Technicians and associate professionals
Easy access to unhealthy food options – i.e. fast food, takeaways, vending machines	5	4	2	3	3	3	3
Lack of facilities for preparing food – i.e. microwave oven, cooker etc	1	1	3	1	3	3	3
Lack of facilities for storing healthy food – i.e. refrigerator	1	1	3,4	3	3	1,3	3
Lack of healthy food options in canteen	2	2	3	2	2,3	4	3,4
Lack of nutritional information in canteen or vending machine food	2	2	3	3	3	3	3
Lack of break – lunch areas causing employees to eat at their workstations, desks, cars etc	1	1,2	4	3	4	3	4
Occupational stress	5	5	4	3	4	4	3
Long working hours	5	5	5	3,4	3	4	3

Shift work	1	1	1	1	1	1	5	3
Continuous sedentary working behavior – spending a lot of time seated	5	5	4			5	2	3
Inflexible work schedule – very short or no lunch breaks	4	4	4		4	3	3	3
Lack of onsite physical activity facilities	4	3	4		3	3	4	3
Lack of onsite lockers and showers	3	2,3	3		3	3	3	3
Stairs at the workplace not accessible and not properly illuminated	1	1	1		2	2	2	3
Lack of cycle storage facilities	1,2	2	2		3	1	1	1
Active access to the workplace discouraged by inadequate public transportation system	1	1	3		3	3	3	3
Limited availability of nearby (and safe) recreational areas, green spaces, parks, sports grounds etc	3	4	4		4	2,4	4	3
Lack of management commitment to promoting workplace wellness	3	1,4	4		4	3	4	4
Limited financial support from management to health promotion programs	1	1	4		4	4	4	3

Lack of a workplace health promotion policy	1	1	3	4	3,4	4	4	4
Lack of staff to implement workplace health promotion activities at the workplace	1	1,2,3,4	2	3	3	4	4	4
Lack of workplace health promotion programs and interventions promoting healthy nutrition and physical activity	4	3	3	3,4	3	3,4	4	4
Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity	4	4	3	4	4	4	4	4
Low employee participation in workplace health promotion programs	3	3	3	3,4	4	4	3	3
Lack of incentives for employees participating in obesity prevention programs	4	4	3	3,4	3	3	3	3
High cost to employers for providing physical activity opportunities	1	3	3	3	3	3,4	3	3
Not enough space – at the workplace	1	1	3	4	4	4	3	3

Table 2.1b: Obesogenic factors for different occupational settings (International Standard Classification of Occupations (ISCO-2008))

Obesogenic Factors	Clerical support workers	Service Factors and sales workers	Agricultural, forestry and fishery workers	Craft and related trades - builders, electricians, handicraft etc	Plant and machine operators, assemblers, drivers	Elementary occupations - cleaners, labourers, messengers,	Armed forces occupations
Easy access to unhealthy food options – i.e. fast food, takeaways, vending machines	4	4	1	2	3	4	1
Lack of facilities for preparing food – i.e. microwave oven, cooker etc	3	4	4	4	2	2	1
Lack of facilities for storing healthy food – i.e. refrigerator	4	4	4	4	4	2	3,4
Lack of healthy food options in canteen	3	4	5	3	3	4	4
Lack of nutritional information in canteen or vending machine food	3	3	5	3	4	3	3
Lack of break – lunch areas causing employees to eat at their workstations, desks, cars etc	3	4	4	3	4	4	1,2
Occupational stress	4	3	3	3	3	3	4
Long working hours	2	3,4	3	3	3	3	3,4
Shift work	1	3,4	1	3	5	3	4
Continuous sedentary working	5	4	1	1	5	1	1,2

[illegible]

[illegible]

In summarizing, the most important occupational factors which are considered as obesogenic by the experts we can conclude the following:

Lack of awareness and policy

Workplace health promotion programs for the prevention of obesity, although highly needed are lacking in many countries thus experts have rated the absence of relevant *policy, management commitment, financial support and necessary staff for the implementation* of such programs as important obesogenic factors for many occupational categories. Specifically experts have rated the following factors as highly relevant and relevant in most occupational settings:

- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity
- Lack of management commitment to promoting workplace wellness
- Limited financial support from management to health promotion programs
- Lack of a workplace health promotion policy
- Lack of staff to implement workplace health promotion activities at the workplace

Workplace environmental factors

Another group of factors highly rated by experts as obesogenic concern occupational environmental aspects such as:

- Limited availability of nearby (and safe) recreational areas, green spaces, parks, sports grounds etc
- Lack of facilities for storing healthy food – i.e. refrigerator
- Lack of break – lunch areas causing employees to eat at their workstations, desks, cars etc
- Lack of onsite physical activity facilities

These environmental factors are relevant for many different worksites and should be addressed in interventions targeting obesity. Research has shown that by increasing knowledge (i.e., by education or worksite counseling) on the advantages of a particular health behavior conscious choices can be influenced. Since though health behavior is

influenced by complex unconscious processes and organizational and social aspects it is important to also address the physical environment in order to influence conscious and unconscious behavior and habits (Wetter et al., 2001). Experts confirm thus what is repeatedly emphasized in the literature about the importance of environmental factors in the prevention of obesity at the workplace.

Occupational stress

Occupational stress is considered as a major obesogenic factor according to the experts supported repeatedly in the literature. More specifically, in many studies high job demands, low job control and high job strain have been associated with a higher BMI (Kouvonen et al., 2005; Niedhammer et al., 1998; Wamala et al., 1997; Hellerstedt & Jeffery, 1997).

Long working hours

Experts suggest that long working hours is an important obesogenic factor which applies to many different occupational categories and this is in accordance with the literature. Long working hours is considered one of the main occupational stressors for most workers, and overtime has been characterized as an important contributing factor for increase in both BMI and Waist Hip ratios (Nakamura et al., 1998). Similar findings are reported by Lallukka and colleagues (2005) who pointed out that work fatigue and working overtime were connected with employee' weight gain. High job strain and overtime have also been considered as potential barriers to physical activity (Schneider & Becker, 2005). The consequence of working long hours has implications for the families of employees.

Continuous sedentary working behavior – spending a lot of time seated

This certain obesogenic factor is considered important by experts, a fact which is also confirmed in the literature. Various studies suggest that over the past century there has been a large decline in individual physical activity, since computer-related occupations have become more commonplace and they involve high levels of sitting time and lower

demand for physical activity. There is high chance that these types of jobs may play a role in the growing problem of overweight and obesity (Egger et al., 2001; Mummery et al., 2005).

2.2. Screening of the workplace for dangerous tasks for obese employees

Obesity is a recognised and serious risk factor for a number of diseases such as cancer, cardiovascular disease, musculoskeletal disorders etc. Little research though has been conducted concerning the role of obesity in occupational related diseases and conditions. In other words little is known about the additional risks employees who are already obese face while involved in certain occupational tasks or employed in certain occupations.

Some studies have concluded that obese employees are more at risk for experiencing:

- heat exhaustion and heat stroke when working in hot environments (Schulte *et al.*, 2007); like firemen, traffic control officers, policemen, farmers and agricultural workers, plant machine operators, cleaners, construction workers etc
- respiratory strain and disorders during hard physical work (Schulte *et al.*, 2007); like manual workers, construction workers etc
- accidents involving equipment operators (Schulte *et al.*, 2007)
- health risks from pesticide exposure (Schulte *et al.*, 2007), farmers, industry workers etc

There is also evidence that obesity increases the risk of certain occupational diseases and conditions such as occupational related musculoskeletal disorders, cardiovascular diseases, work-related asthma and vibration-induced injury (Schulte *et al.*, 2007). There is also speculation that obesity may increase the adverse health effects caused by occupational stress. Finally, there is much speculation concerning the reaction obese people may have to neurotoxins and how their immune systems react to chemical substances which are very frequently encountered in occupational environments especially in the industrial sector (Schulte *et al.*, 2007).

In view of these findings prevention of obesity at the workplace needs to include a complete assessment of the workplace environment in order to determine if certain tasks pose additional threats to the health and well being of employees who already face problems with obesity and overweight. Once identified appropriate measures need to be put into place so as to protect employee health. The workplace environment needs to be evaluated and screened for example for:

- Adequacy of equipment in order to accommodate the needs of obese employees – ladders, chairs, workspace, personal protective equipment
- The effectiveness and availability of Personal Protective Equipment (PPE)
- Assessment of tasks so as to ensure that obese employees are able to perform assigned jobs without any risk to their health and wellbeing
- Through careful review of employee health records ensure that obese employees do not have a higher prevalence of certain occupational diseases (i.e. occupational musculoskeletal disorders or occupational asthma) which may be associated with specific working conditions. For example obesity can lead to sleeping problems resulting in fatigue and possible loss of dexterity leading to accidents

The GPOW consortium sought to identify specific occupational sectors which may pose additional threats to the health and well being of obese employees thus urging employers of these sectors to implement additional measures so as to protect the health and well being of their employees.

Experts from each one of the participating countries in the GPOW project answered a purpose made questionnaire aiming at identifying occupational sectors and tasks which are dangerous for employees who are already obese. The questionnaire asked experts to assess if each one of the occupations listed in the **International Standard Classification of Occupations - ISCO-2008**) was dangerous for employees who were already obese.

Our findings indicate the following:

Occupational categories considered to be hazardous for obese employees according to the experts are: Managers (38,2%), Chief executives, senior officials and legislators (38,2%), Agricultural, forestry and fishery workers (39,4%), Plant and machine operators assemblers, drivers (44,1%), and Armed forces employees (35,5%).

It was also suggested that probably hazardous for obese staff are the following occupational categories: Professionals – medical, business and administration, medical and other teaching professionals (50%), Science, engineering, architecture and computing (38,2%), Primary and pre primary teaching professionals (48,5%), Technicians and associate professionals (57,6%), Service and sales workers (44,1%), Craft and related trades – builders, electricians, handicraft (41,2%), Elementary occupations - cleaners, laborers, messengers (40,6%). Occupational categories considered not hazardous for obese staff are: Nursing and midwifery professionals (50,0%) and Clerical support workers (41,2%).

For some occupational categories, it is not clear if they are hazardous or not for obese staff (probably due to the small sample size). More specifically, the occupational category that includes Science, engineering, architecture and computing occupations is considered to be probably hazardous (38,2%) as well as not hazardous (35,3%). The occupational category that includes Agricultural, forestry and fishery workers is considered to be hazardous for obese staff (39,4%) as well as not hazardous (36,4%) – a larger sample size is needed in order to understand which of the two considerations is valid. Armed forces occupations are considered to be hazardous (35,5%) for obese staff as well as probably hazardous (32,3%) and not hazardous (32,3%).

Table 2.3 summarizes the opinions of experts concerning occupational tasks dangerous for obese employees

Table 2.3: Occupational sectors dangerous for obese employees

Occupational Category	Hazardous for obese staff		
	No (%)	Probably Yes (%)	Yes (%)
Managers	29,4	32,4	38,2
Chief executives, senior officials, legislators	26,5	32,4	38,2
Professionals – medical, business and administration, medical, other teaching professionals	23,5	50,0	26,5
Science, engineering, architecture and computing	35,3	38,2	26,5
Primary and pre primary teaching professionals	42,4	48,5	9,1
Nursing and midwifery professionals	50,0	23,5	26,5
Technicians and associate professionals	23,5	57,6	18,2
Clerical support workers	41,2	20,6	38,2
Service and sales workers	38,2	44,1	17,6
Agricultural, forestry and fishery workers	36,4	24,2	39,4
Craft and related trades – builders, electricians, handicraft etc	26,5	41,2	32,4
Plant and machine operators, assemblers, drivers	14,7	41,2	44,1
Elementary occupations – cleaners, laborers, messengers	31,2	40,6	28,1
Armed forces occupations	32,3	32,3	35,5

CHAPTER 3: STAGES IN PROGRAM DEVELOPMENT

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Preventing obesity at the workplace requires a comprehensive Workplace Health Promotion approach as a prerequisite for successful implementation. Comprehensive Workplace Health Promotion according to the Health Communication Unit at the University of Ontario has been defined as “*an approach to protecting and enhancing the health of employees that relies and builds upon the efforts of employers to create a supportive management under and upon the efforts of employees to care for their own wellbeing*” (Health Communication Unit, 2004a).

3.1. Comprehensive Workplace Health Promotion- 3 Levels

Implementation of a comprehensive workplace health promotion intervention for the prevention of obesity at the workplace needs to plan activities across 3 levels.

Occupational Health and Safety (OHS) Level – Occupational Health and Safety measures are mandatory activities legislatively required by all employers - who are responsible for the health and well being of all their workers. Research has shown that once threatening work conditions have been removed from the workplace environment addressing less immediate health threats such as obesity will be more easily received by workers (Hunt et al. 2005; Sorensen et al. 2002).

EU OHS legislation as well as EU MS legislation does not directly link obesity with health and safety risks of workers although it has been well established that the workplace is obesogenic and does influence obesity outcomes (Wanjek, 2005).

In the EU OHS legislation some measures which have some relation to the eating patterns of employees and thus could be indirectly used in obesity prevention activities are the following:

- Provide adequate restrooms and areas for food breaks (EU Council Directive 89/654)
- Allowing a meal break during an 8 hour shift or a rest break of at least 11 hours between shifts (93/104/EC)

A summary of relevant European related legislation can be found in Annex III.

Individual Health-Related Behaviors – Employees have established health-related practices which influence the outcome of obesity like insufficient physical activity, diets rich in animal fat and sugars, a general sedentary lifestyle etc. These lifestyle behaviors can be addressed at the workplace as workplaces present unique settings with access to a large segment of the adult population creating unique opportunities for changing or influencing behaviors that cause or lead to obesity.

Workplace environment and organizational factors - The workplace is obesogenic, it influences obesity outcomes through a plethora of factors which have to do with:

- how work is organized – i.e. work related stress, work overload, frequent overtime, frequent business travelling, disruption of work life balance
- the nature of work – i.e. sedentary (office workers, long distance drivers), shift work (nurses, doctors)
- environmental factors – i.e. lack of adequate facilities for storing and preparing food, lack of adequate eating areas, lack of healthy food choices in workplace canteens

The creation of a healthy workplace should evolve through a multidisciplinary and intersectoral partnership, a key issue for the success, effectiveness and sustainability of implemented programs. Different stakeholders that can play a role in WHP include: international organizations; ministries of health, labor and safety; local and municipal

governments; nongovernmental organizations (NGOs); civil society; employers; employees; trades unions; company health insurance funds; the agriculture industry; food producers, catering and food distributors; and the sports industry.

There are six steps which need to be followed in a comprehensive workplace health promotion program for the prevention of obesity

1. Ensure management support and commitment

Securing the support of management is essential. Management should be invited to link health promotion objectives, including obesity prevention, to company's business outcomes — thus positioning health promotion as an integral part of the organization. A program coordinator should then be selected to facilitate the process.

2. Establish a coordinating body/committee which should include representatives from all sectors and levels of the workplace

Management and program coordinator could establish a coordinating committee to ensure the participation of all members of the organization (e.g. management, production/service delivery, sales, personnel, occupational physician, and trade unions) and to share goals of the initiative with individuals and groups. At the same time involving a committee could be a way to explicit company's position and, according to empowerment approach, to allow employees to identify problems and suggest solutions. These committees are also frequently referred to as "Wellness committees" – helpful in exchanging ideas between employees and management, as both groups may enter into a WHP program with different goals in mind. Employee advisory boards can guide the direction of specific intervention activities. Committee meetings may also be an opportunity to reinforce how the overall workplace health program will be matched to business objectives.

The committee fits very well with large-scale and small-scale organizations, on the other hand, an external alliance with community resources could be strategic (e.g. health services, safety agencies, associations, etc.) and the creation of partnership with other organizations.

3. Conduct a needs assessment in order to establish potential health risks and stimulate interest in the program

The first task of the committee is to gather data before planning health interventions so as to identify important characteristics of workers (e.g. what are the subjective employees' needs and expectations; what is the attitude of the key groups towards the planned actions/changes, and so on), workplace environmental factors that could be obesogenic (release time for physical activity, restructuring breaks, rules about accessing food, catering policies etc.) and possible barriers or opportunities of the organization. At the same time data could be collected to create a baseline of the workplace situation before program implementation, which could be used during the process and outcome evaluation. Main methods to collect such information are questionnaire surveys, focus-groups and interviews. The assessment could also stimulate interest in the program among the employees and collect a first feedback and proposals.

4. Develop an action plan based on the prioritized needs and problems

A written action plan should be based on the needs assessment and on suitable theoretical foundation and conceptual model. The plan includes achievable short- and long-term goals and objectives, strategies, activities, budget, timetable, a designation of roles and responsibilities for implementation, and an evaluation plan. The project should be from 6 months to 5 years long and revisited every year. Health education should be strongly rooted in employees' experience, easy to understand and remember and easy to put into practice.

5. Implement the plan with active participation from the workers

The coordinating committee will proceed to implement the plan trying to involve workers through an effective communication and enabling empowerment and participatory processes. The communication of environmental and organizational changes should be based on clear messages through announcements at meetings, use of bulletin boards, flyers, e-mail, etc. Employee Advisory Boards, if existing, could be useful to allow employees to monitor and guide planning and implementation of the intervention. It is

important to describe clearly the framework or structure of the proposed programs so that employees will be well prepared to participate in them. For example, announcements of planned wellness programs at company – wide “lunch days” or lunchtime walking groups, broadly advertised with the use of posters, e – mail messages and newsletters – all contribute to effective communication and can encourage successful engagement of employees in WHP programs. The mutual exchange of input and collaboration between program planners and employees at every step of planning, implementing and evaluating WHP programs is essential (Sorensen, Linnan & Hunt, 2004). By engaging employees in this participatory process active involvement will be encouraged and employees will be ensured that the proposed activities meet their specific needs.

6. Evaluate the process and outcome to establish the success and problems and to obtain recommendations for improvement of the program

A report could be produced every year by the coordinating committee to inform both management and employees about the progress of the plan. The report shows data from the process and outcome evaluation of the program. A process evaluation assesses the implementation of the plan through environmental and organizational changes and the participation and satisfaction of employees. An outcome evaluation provides an assessment of middle and long-term effects of specific program activities through quantifiable indicators. Examples from middle-term effects are awareness, knowledge, beliefs, skills and behaviour changes, and an example from long-term effects is change in obesity rates. The evaluation is essential to see how well the program is progressing and it may include achievements and problems useable for redesigning the plan. Evaluation may use multiple data sources, be based on the same tools of detection of needs assessment and include direct feedback from participants. According to empowerment perspective self-assessment tools could be used to conduct a participatory evaluation in which the stakeholders participate substantively in the identification of the evaluation issues, the design of the evaluation, the collection and analysis of the data, and the action taken as a result of the evaluation findings.

In the following part of the chapter an in depth analysis of the types of needs assessment required for preventing obesity at the workplace will be discussed.

3.2. Needs assessment

Needs assessment is an essential step of any health promotion planning activity. It refers to the process of identifying and analysing a **health need**, which should not be mistaken with the need for an intervention (Karnaki *et al.*, 2007). The need for physical activity interventions is **not** a health need. On the contrary identifying that 30% of the staff of an industry or company is obese is a health need. A health need is also identifying that only 20% of staff engage in weekly physical activity or that the consumption of fruit and vegetables among staff is low. These findings are considered as risk factors for developing obesity. A health need is also recognizing that 70% of staff for example engage in constant sedentary occupational tasks and do not take regular breaks.

According to the principles of comprehensive workplace health promotion, assessing employee needs (or conducting a situational assessment) is essential and includes the understanding of these needs (that obesity is indeed a problem, or that staff engage in risky behaviours, or that the nature of work is obesogenic) and also the acceptance by staff that obesity is indeed a problem for them and affects their quality of life. The determinants of obesity among industry workers for example may be different from the determinants of obesity among office workers. For the former group poor nutrition or lack of awareness concerning the consequences of bad nutrition may be the key health problem in contrast to the latter group for which sedentary type of work may be the key issue to address in an intervention targeting obesity.

A needs assessment, or situational assessment or diagnosis of a health situation includes

- (a) identifying priority health issues among the employees of a specific setting
- (b) analyzing the health need identified and how it is connected or may affect obesity

Needs assessment refers to the process of identifying and analyzing obesity as a health problem and determining the nature of the target group (specific employees and workplace) for the purpose of planning an intervention. This stage includes on the one hand the detailed description of the target group and on the other hand the definition of behavioral and environmental/organizational causes and determinants of the health need or problem and includes the analysis of epidemiological evidence as well as qualitative data from expert interviews and focus groups with the target group (Karnaki *et al.*, 2007). Methods used to do needs assessments include quantitative (surveys, questionnaires, biomedical examinations, absenteeism and occupational accidents etc), and qualitative methods (interviews, focus groups etc).

Although essential for planning and implementation of workplace health promotion, needs assessment is not always conducted resulting in inadequate methods and activities for a target group or a given occupational setting. For example staff of an industry mostly from a low socioeconomic or migrant background will not benefit much from an intervention using educational pamphlets as their main approach.

Given that various factors contribute to increased body weight, obesity cannot simply be tackled by targeting individual health behavior. Positive energy balance and weight gain are due to a combination of genetic, metabolic, behavioral, environmental, cultural and socioeconomic influences. Since behavioral and environmental factors are large contributors to increased body weight, they should be targeted by any intervention aiming at preventing or treating obesity.

Concerning environmental determinants researchers were able to define certain environmental/organizational conditions which were obesogenic namely: release time for physical activity, restructuring breaks, rules about accessing food, catering policies etc. Both personal and environmental determinants of energy imbalance were listed and for each factor a method and a strategy were devised. Needs assessments need to be supported by evidence based research guiding planning and implementation.

Collect health-related data about the priority issue. Consider collecting the following:

- demographic data
- morbidity and mortality rates
- health behaviour and practices (if available)
- health status data (including social, economic, and environmental indicators)

Who Is Being Assessed?

Basically, there are two audiences involved when conducting a situational assessment within a workplace:

1. All employees (including management) are assessed to get a thorough and broad understanding of the overall population.
2. An employer or a committee provides information to get an understanding of the overall environmental or organizational aspects of the workplace. It is not unusual for a workplace to undertake both of these approaches.

Obesity, or even overweight, in a person is generally not difficult to recognise. But proper diagnosis requires that clinically significant risk levels of the problem be identified, and this often necessitates some form of quantification. In some cases it may be necessary to make a clinical judgment about the possible counter-productive effects of quantifying overweight or obesity in a person who is obviously overweight and who may be adversely affected by further measurement. In these situations, assessment of food intake, physical activity and other factors might continue in the absence of body-fat measurement. If a more detailed assessment is called for, at some stage in the assessment it may be necessary to use a clinical measure, or measures, which should have several important characteristics:

- valid, reliable and sensitive
- clearly defined, easy-to-use, and understandable to the patient
- offering a measure of disease risk
- responsive to, and predictive of, changes in body fat

Various measures have traditionally been used, but it is really only in recent years that the evidence has allowed a qualified assessment of their value. Assessment of overweight is defined as a body mass index (BMI) of 25 to 29.9 kg/m². Obesity is defined as an excess of total body fat that is documented by a BMI of > 30 kg/m². Several methods are available for determining or calculating total body fat: total body water, total body potassium, bioelectrical impedance, and dual-energy X-ray absorptiometry. BMI provides a more accurate measure of total body fat than relying on weight alone. It has an advantage over percent above ideal weight (e.g. based on the Metropolitan Life Insurance Tables). Ideal body weight tables were developed primarily from white, higher socioeconomic status populations and have not been documented to accurately reflect body fat content in the public at large.

Assessment of the health risks associated with overweight and obesity in adults should be based on BMI and waist circumference as follows. For men, waist circumference of less than 94 cm is low, 94–102 cm is high and more than 102 cm is very high. For women, waist circumference of less than 80 cm is low, 80–88 cm is high and more than 88 cm is very high. Adults should be given information about their classification of clinical obesity and the impact this has on risk factors for developing other long-term health problems.

Needs assessment tools

In this resource, six different types of situational assessment tools are identified. Each type is distinct, but there are also many similarities across the six. The terminology for types of situational assessment tools varies from workplace to workplace as well as geographically, e.g., in Europe, what this resource refers to as a “workplace audit” is known as a “self-assessment”. This resource does not represent an exhaustive listing of all types of tools. Tools that focus on occupational health and safety were omitted because these are readily available to professionals working in this area.

- **Current practice survey** – A type of situational assessment tool that collects individual responses from employees about their current behaviours (e.g. how much they eat/sleep, current levels of physical activity). Employees self-report their

behaviours. Current practice is often combined with other types of situational assessment tools.

- **Health risk assessment** – A type of situational assessment tool that collects clinical measures of health status (e.g. BMI, cholesterol, nutritional analysis, heart rate response to exercise). The assessment of risk is based on clinical report/measures (i.e., it is not self-reported). In most cases, a health risk assessment requires a professional to administer the assessment to all employees. The health risk assessment usually results in individualized results and an aggregate report for the workplace.
- **Interest survey** – A type of situational assessment tool that collects the information from individual employees about the types of programs and services they are interested in. An interest survey usually results in an aggregate report for the workplace.
- **Needs assessment** – A type of situational assessment tool that collects the self-reported needs of individual employees. Individual employees fill out a needs assessment and identify areas they would like to focus on. A needs assessment asks for employee opinion and usually results in individualized results and an aggregate report for the workplace.
- **Organizational culture survey** – A type of situational assessment tool that collects information from employees or employers about the organizational working environment. Elements of the organizational environment include leadership style, management practices, the way in which work is organized, employee autonomy and control, and social support.
- **Workplace audit** – A type of situational assessment tool that provides a snapshot in time of what's happening in the workplace. The workplace audit collects information about what the workplace offers employees (e.g., showers, flexitime). One or a small group of individuals from the workplace provide the information for the workplace audit. The information collected from the workplace audit could be specific to one or more aspects of comprehensive workplace health promotion (i.e., organizational change, occupational health and safety, lifestyle practices.)

A list of needs assessment tools used in various workplaces are listed in Annex II.

3.3. Developing a healthy workplace - Considerations per workplace sector

In the following chapter a number of workplace settings will be addressed as to their obesogenic nature and related counter obesity activities will be outlined across the three levels which constitute comprehensive workplace health promotion.

3.3.1. Office workers – secretaries, clerks and senior managers, lawyers, executives

The nature of work has changed over the last 30 years with sedentary type of employment becoming increasingly widespread. People occupied in positions requiring long hours of sitting in an office such as managers, clerks, secretaries or call center personnel have risen especially among female employees.

The nature of these types of jobs makes employees working in this sector especially prone to obesity. Working in front of a PC screen or a switch board for long hours requires minimum energy expenditure which increases chances of gaining weight. A number of particular characteristics of these types of jobs contribute to an already difficult situation:

- high work demand without interruption for breaks except for the toilet or a drink;
- meals are often eaten at the office;
- meals are often skipped because of work pressure leading to eating more during the evening hours;
- work areas are often cramped making walking between offices difficult;
- continuous access to the internet makes email communication between coworkers the most frequent mode of communication compared to face to face communication;
- office jobs especially those of managers, executives, secretaries and clerks are often characterized by frequent overtime and unplanned and unscheduled work. This considerably shortens available free time for both preparing healthy meals (often opting for fast food solutions) and available time for physical activity.

Furthermore, the majority of employees in this workplace sector are women thus unplanned and unscheduled overtime often clash with family responsibilities disrupting work - life balance. The consequences of unhealthy food and inadequate physical activity thus influence the whole family. Research has shown that the more hours a mother worked weekly the more overweight her children would be (Hawkins *et al.*, 2008; Anderson, Butcher & Levine, 2003; Phipps, Lethbridge & Burton, 2006).

- obesity among sedentary employees working in office jobs is independently associated with certain injuries such as carpal tunnel syndrome (Pollack *et al.*, 2007).

Employees in more senior type of office jobs such as senior executives, managers or lawyers are also prone to obesity because of certain obesogenic characteristics their jobs entail. In particular although research is inadequate concerning senior occupational positions it is suggested that high executive personnel are living unhealthy lifestyles leading to an increased risk of cardiovascular disease (USA Today, 2000). Research findings suggest that occupational sitting time increases with occupational status and age (Mummary *et al.*, 2005). Senior managers and executives and lawyers are considered occupations with a higher status thus these employees are considered as being at a high risk for obesity among other cardiovascular risk determinants.

Additional obesogenic factors apart from long working hours and occupational stress and occupational pressure are:

- Frequent business dinners
- Frequent business trips

Obesity prevention interventions for employees working in offices such as secretaries, clerks or employees of call centers but also managers, lawyers and senior executives need to take into consideration:

- the sedentary nature of these jobs
- the high demand placed on employees

- the frequent and unscheduled overtime
- frequent business meetings and business trips
- the gender perspective – studies have shown that women employed in lower occupational positions had higher BMI compared to women who worked as managers and other related professions. Women in lower occupational positions are more prone to obesity. For men these findings are not consistent. It seems that the reverse is true with men holding higher status jobs being more prone to obesity compared to men holding lower status positions (Ball, Mishra, & Crawford, 2002).

In more detail, obesity prevention interventions in this occupational group need to address the demanding nature of such jobs changing possible organizational aspects which contribute to an already obesogenic environment. Successful interventions targeting obesity in these workplaces have also given emphasis to changing certain environmental aspects – such as lack of rest/lunch rooms, lack of facilities for storing food, changing the content of vending machines or if canteens are available allowing for more healthy food options at cheaper prices. Some simple yet successful programs have simply promoted the use of stairs instead of the elevator, particularly for urban environments where alternative means of physical activity are not readily available (Kennedy *et al.*, 2007).

On the individual level strategies which have been successful in preventing obesity at the workplace have combined nutritional and physical activity and have adopted a more personalized approach when providing information or when offering counseling and support for skills development. Finally, in this type of employment the gender perspective (the majority of these employees are women) needs to be taken into consideration and out of work activities aimed at preventing obesity should include the whole family. Table 3.1 summarizes suggested strategies for preventing obesity among employees of sedentary jobs such as secretaries, clerks and call center workers across all levels of workplace health promotion.

Table: 3.1 Preventing obesity among office job workers: secretaries, clerks, senior managers, lawyers

Authority Level Occupational Health and Safety	Individual Level	Management Level (Environmental/Organizational Issues)
<ul style="list-style-type: none"> • Emphasize the need and the importance of rest breaks and ensure that all employees have time to take their scheduled breaks • Ensure that workers have a rest or lunch area away from their offices • Provide days off, if overtime becomes very frequent 	<ul style="list-style-type: none"> • Apply nutrition and physical activity strategies, such as: <ul style="list-style-type: none"> ✓ Group sessions aiming at skills development ✓ Individualized counseling on eating strategies, recipes, barriers to eating healthy, eating habits, etc., including setting individual goals and a clear plan for monitoring success ✓ Access to an Information Center (virtual/electronic or printed) with the ability to obtain individualized information and support in the way of Quick Tips ✓ Use of the company email system to send newsletters, updates, reminders ✓ Other successful activities targeting obesity in this setting: presentations, audiovisual materials, dietary assessment and behavioral feedback, self-help manuals and tailored written materials, mailings, telephone counseling and support, food preparation and cooking demonstrations, activities involving the whole family, supervised exercise, cooperation with cafeteria staff, so as to promote healthier recipes, dishes and portion sizes • Provide onsite physical activity training sessions or, if not possible, explore the possibilities of obtaining reduced rates for employees in nearby fitness centers • Allow participants to self-monitor progress against well defined and measurable objectives, i.e. use pedometers to monitor physical activity progress and dietary cards to measure food intake • Provide guidelines for healthy eating during meetings 	<ul style="list-style-type: none"> • Provide water fountains to which workers need to walk to • Allocate a small area with fridge and microwave facilities • Ensure that vending machines have as many healthy options as possible • Promote the use of stairs ensuring that stairways are adequately lit and safe (some successful interventions have used music to encourage employees to take the stairs instead of the elevator) • Monitor overtime and distribute workload avoiding piling work on only few employees • Notify employees ahead if extra work or unavoidable overtime is foreseen • Consider alternative management style if overtime and work overload becomes too frequent

3.3.2. *Transportation employees, truck drivers, taxi drivers*

Employees of the transportation sector including long distance truck drivers are especially prone to obesity as they spend long hours (in the case of truck drivers, even days) on the road in a sedentary position with no chance for moving about. For example, bus drivers show higher rates of mortality, morbidity, and absence due to illness compared with other occupations (French *et al.*, 2007; Wang & Lin, 2001). Similar observations have been made for taxi drivers.

Although there is no comprehensive European study concerning the prevalence of obesity in this occupational group evidence from some countries like the USA show that obesity rates are extremely high among transportation employees compared to the general population (French *et al.*, 2007; Wang & Lin, 2001). Apart from an increase in absence due to illness and the high financial cost and lost productivity for employers, obesity among employees of this occupational group poses serious safety threats not only to personal safety but also safety of the wider public. Conditions such as breathing sleep disorders and strokes experienced by bus drivers or long distance truck drivers while on duty could endanger other drivers' lives and cause serious accidents. Thus for the employer of this sector obesity should be primarily considered as a Health and Safety issue and secondary as a Workplace Health promotion issue.

Truck drivers and transportation workers especially urban bus drivers are exposed to a high level of occupational stress caused by rigid time schedules, high responsibilities for both passengers and transferred goods, low control over factors such as traffic jams, and exposure to environmental pollutants (Wang & Lin, 2001).

The obesogenic factors which could influence obesity outcomes in this occupational group are:

- Long hours of sedentary type of work
- No physical activity opportunities along the transportation routes
- Limited access to healthy nutrition in transportation or truck terminals

- Shift work
- Occupational stress
- Lack of adequate rest areas
- Lack of scheduled breaks or meals
- Organizational factors such as work overload and excess demand leading to psychological strain

Interventions targeting this occupational category need to focus mainly on the nature of the jobs and influence the occupational and organizational characteristics which could lead to behaviors facilitating weight gain. Although hard to put into practice there are measures that could improve obesogenic working conditions and since the consequences of obesity are dangerous not only for employees themselves but the wider public preventing obesity needs to be taken into serious consideration. The role of statutory organizations such as unions, workers' representatives even public OHS bodies could prove important for this category of workers since initiatives on an individual employer basis is hard to implement. Initiatives addressed to groups of workers belonging for example to the truck drivers' or taxi drivers' associations or unions could be more effective than persuading one single employer to address obesogenic workplace conditions.

Table 3.2 summarizes a number of measures for this occupational setting across the 3 levels of comprehensive workplace health promotion.

Table 3.2: Preventing obesity among transportation employees, truck drivers, taxi drivers

Authority Level Occupational Health and Safety	Individual Level	Management Level (Environmental/ Organizational Issues)
<ul style="list-style-type: none"> • Emphasize the need and the importance of rest breaks and ensure that all employees have time to take their scheduled breaks • Conduct periodic health checks among all employees (transportation drivers, truck drivers, taxi drivers) assessing risk factors for cardiovascular disease, diabetes, strokes, sleeping induced apnea, etc., including BMI measurements. Monitor high risk employees and provide individualized treatment and counseling • Ensure that workers have a rest area in bus or taxi terminals and truck depots • Monitor and regulate work shifts according to statutory OHS legislation • Monitor and regulate days off according to statutory OHS legislation 	<ul style="list-style-type: none"> • Involve statutory bodies, including unions, associations, employee representative organizations and statutory OHS bodies, to coordinate counter obesity interventions at workplaces, such as: <ul style="list-style-type: none"> ✓ Skills development sessions ✓ Individualized counseling on eating strategies, recipes, barriers to eating healthy, eating habits, etc., including setting individual goals and a clear plan for monitoring success ✓ Access to an Information Center – access to printed material - with the ability to obtain individualized information and support in the way of Quick Tips. ✓ Other successful activities which can be part of an intervention targeting obesity in this setting: tailored written materials, mailings, food preparation and cooking demonstrations, activities involving the whole family ✓ Explore the possibilities of obtaining reduced rates for employees in nearby fitness centers ✓ Allow participants to self-monitor progress against well defined and measurable objectives, i.e. use pedometers to monitor physical activity progress and dietary cards to measure food intake 	<ul style="list-style-type: none"> • Trucks could be equipped with small fridges for storing healthy food • Agreements with specific road side restaurants could be reached so as to include special menus with healthy options for truck drivers • Install vending machines with healthy food options in bus or taxi stations and truck depots • Reorganize working hours, run times, rest days, pauses and breaks • Establish a feedback system through which employees can identify possible problems and suggest solutions. This could be organized centrally by employee and employer associations.

3.3.3 Policemen, fire workers

Policemen and firefighters according to a number of studies have in comparison to other occupational groups a higher BMI index and have a significant higher risk of suffering and dying from coronary heart disease (CHD) and other obesity related illnesses (Nagaya, Yoshida Takahashi & Kawai, 2006; Soteriades *et al.*, 2005; Balkau, 2004; Byczek, 1998). Firefighters and policemen die more of CHD causes while on duty compared to other occupations. In particular it has been found that 45% of all on-duty deaths among firefighters are due to cardiovascular events mostly due to coronary heart disease while the figure among policemen is 22% (compared to 15% of all on duty deaths from CHD among all occupations) (Kales *et al.*, 2003, 2007; Fahy 2007; Firefighter Fatality Retrospective Study, 2002). Obesity in firefighters has been found to be significant even when studied over a 5 year period especially among younger men (Soteriades *et al.*, 2005; Ide, 2000; Glueck *et al.*, 1996; Davis *et al.*, 2002). The exact reasons that employees of this occupational group are heavier have not been adequately researched. Possible explanations – coming from studies concerning the high prevalence of CHD diseases among these employees – could be long sedentary stretches between incidents and shift work. The high prevalence of obesity among these employees may also be due to very low physical activity levels and inadequate nutritional habits. Very few police stations and fire departments provide access to physical activity facilities like gyms although good physical condition is highly required in these occupations given the intense and physically demanding nature of the jobs. Finally, very few police stations or fire departments offer healthy food options to their personnel.

The prevention of obesity among these employees needs to be taken into serious consideration as research shows that this group suffers more from diabetes, hypertension and especially as previously mentioned CHD – with many related deaths happening on duty. Obesity a risk factor to CHD and other illnesses needs to be addressed as a health and safety issue as much as it needs to be seen as a health promotion measure. Firefighters and policemen are expected to perform on short notice responding to emergencies requiring high levels of energy. Obesity can limit their performance and

jeopardize quick responses thus endangering employees' health and safety as well as the safety of the wider public (Soteriades *et al.*, 2008). Obesity is a risk factor for CHD which is very high in this occupational group thus needs to be addressed as a matter of priority.

The obesogenic factors which could influence obesity outcomes among these employees are:

- Long hours of sedentary activity in between emergency calls
- Shift work
- Occupational environmental factors: Lack of physical activity facilities, lack of onsite food canteens
- Individual behavior

Interventions to address obesity among the personnel of fire departments and police officers are highly needed across Europe given the evident consequences on both job performance and the health and safety of both employees and the wider public. In this occupational group coordinated actions of police and firefighters' associations or unions or central administrative bodies are very important in the prevention of obesity. Likewise the role of occupational physicians and Health and Safety personnel is vital in monitoring the health status of staff and providing personalized counseling on preventing obesity. Finally, changing certain aspects of the occupational environment such as providing onsite physical activity facilities and canteens with healthy options are equally important.

Table 3.3 summarizes a number of measures for this occupational setting across the 3 levels of comprehensive workplace health promotion.

Table 3.3: Preventing obesity among firefighters and police officers

Authority Level Occupational Health and Safety	Individual Level	Management Level (Environmental/ Organizational Issues)
<ul style="list-style-type: none"> • Have occupational physicians conduct periodic health checks among firefighters and police officers, monitoring physical condition and BMI. Employees of these high risk categories need to be offered individualized treatment and counseling. • Monitor and regulate work shifts according to statutory OHS legislation • Monitor and regulate days off according to statutory OHS legislation • Establish a comprehensive policy for the health and safety of employees making it known to each of the stakeholders involved • Ensure that onsite canteens abide to statutory requirements 	<ul style="list-style-type: none"> • Health promotion campaigns for the prevention of obesity are highly needed in this occupational group. The involvement of statutory bodies, such as unions, associations, employee representative organizations and statutory OHS bodies is highly recommended in order to effectively implement and evaluate counter obesity interventions. Some examples are: <ul style="list-style-type: none"> ✓ Skills development sessions ✓ Individualized counseling on eating strategies, recipes, barriers to eating healthy, eating habits, etc., including setting individual goals and a clear plan for monitoring success ✓ Access to an Information Center – access to printed material - providing the ability to obtain individualized information and support in the way of Quick Tips ✓ Other successful activities which can be part of an intervention targeting obesity in this setting: tailored written materials, mailings, food preparation and cooking demonstrations, activities involving the whole family ✓ Allow participants to self-monitor progress against well defined and measurable objectives, i.e. use pedometers to monitor physical activity progress and dietary cards to measure food intake 	<ul style="list-style-type: none"> • Offer access to onsite physical activity facilities – one centralized facility could cover a number of smaller fire department or police stations • Ensure that onsite canteens offer healthy food options • Install vending machines with healthy food options • Include healthy options, such as vegetables, fruit and milk, in the food that is offered during emergency 24-hour duty

3.3.4. Health care personnel, nurses, doctors

There is no indication in the literature that this broad occupational category is more prone to obesity compared to the general population. On the contrary research shown that nurses and doctors do not differ significantly in terms of obesity prevalence compared to the general population. A Danish study which compared nurses to other women from the same socio-economic group, found no differences BMI and self-reported health between the two groups (Friis et al, 2005). Another study which describes overweight, obesity and dyslipidemia in young general physicians in northern Iran, showed that the prevalence of overweight/obesity among men and women were 54.5% and 13.3% respectively, suggesting that the prevalence of obesity and dyslipidemia among the young male physicians studied was similar to the Iranian general population (Maddah, 2006).

As for specific occupational factors that could lead to obesity Niedhammer and colleagues (1996) showed that nurses who often work night shifts are more likely to gain weight and to be overweight than nurses who work during daytime. This is in accordance with another study in which 11% of nurses working at night were obese (BMI 30+) compared with 7% of nurses working during daytime (Friis et al, 2005). As far as duration of shift work is concerned it was shown that even though BMI was non-significantly associated with the duration of shift work in female nurses, waist to hip ratio increased according to increasing duration of shift work (Ha & Park, 2005).

According to a study on the predictive behaviors of physicians' overweight status, stress at home as well as eating food provided in the medical office were among the most significant risk factors for obesity (La Puma et al., 2005), whereas factors such as eating in response to loneliness (Schumaker, 1985), boredom (Abramson & Stinson, 1977) and as a reward (Brink et al., 1999) are associated with excess weight, and are obesogenic factors for physicians as well.

The obesogenic factors which could influence obesity outcomes among these employees are:

- Shift work and especially night work
- Long working hours
- Occupational stress
- Occupational environmental factors: Lack of healthy food options in canteen, lack of onsite physical activity facilities, limited availability of nearby (and safe) recreational areas, green spaces, parks, sports grounds etc, lack of onsite food canteens, not enough space -at the workplace - high levels of congestion at the workplace
- Organizational factors: Lack of management commitment to promoting workplace wellness, limited financial support from management to health promotion programs
- Lack of a workplace health promotion policy
- Lack of staff to implement workplace health promotion activities at the workplace
- Lack of awareness by employers concerning the adverse effects of obesity on job satisfaction, turn over and productivity
- Low employee participation in workplace health promotion programs

Since doctors and nurses could work as role models for the general population and as patients are more likely to follow advice from people of healthy weight rather than overweight physicians, it goes without saying that interventions against obesity are extremely important for this specific occupational category. Table 4 summarizes measures for preventing obesity among health care personnel such as physicians and doctors.

Table 3.4: Preventing obesity among health care personnel, nurses and doctors

Authority Level Occupational Health and Safety	Individual Level	Management Level (Environmental/ Organizational issues)
<ul style="list-style-type: none"> • Monitor and regulate work shifts according to statutory OHS legislation • Monitor and regulate days off, especially after a night shift, according to statutory OHS legislation • Ensure that onsite canteens abide to statutory requirements 	<ul style="list-style-type: none"> • Health promotion campaigns for the prevention of obesity are highly needed in this occupational group. Some examples are: <ul style="list-style-type: none"> ✓ Skills development sessions ✓ Individualized counseling on eating strategies, recipes, barriers to eating healthy, eating habits, etc., including setting individual goals and a clear plan for monitoring success ✓ Access to an Information Center – access to printed material - providing the ability to obtain individualized information and support in the way of Quick Tips ✓ Other successful activities which can be part of an intervention targeting obesity in this setting: tailored written materials, mailings, food preparation and cooking demonstrations, activities involving the whole family ✓ Allow participants to self-monitor progress against well defined and measurable objectives, i.e. use pedometers to monitor physical activity progress and dietary cards to measure food intake 	<ul style="list-style-type: none"> • Seek managerial agreement for staff to use out of hours the physiotherapy gym used by patients during the day • Ensure that onsite canteens offer healthy food options, especially since they belong to health care facilities • Install vending machines with healthy food options • Advertise the number of steps needed to walk down each long hospital corridor or between different departments and areas, for example “x-ray to outpatients”, “emergency to the canteen” • Declare a ‘lift-free day’ when staff should only take the stairs • Encourage the setting-up of ‘weight clubs’ or ‘weight days’ in different departments to highlight the need for weight to be monitored regularly (by patients and staff) • Provide a basic set of scales in changing rooms to encourage weighing

3.3.5. *Blue collar workers: industrial employees, construction workers*

The number of blue collar workers has been steadily declining in the last years. In the USA occupations requiring high physical activity have declined from 30% to 23% (Caban-Martinez, 2007; Brownson *et al.*, 2005). Furthermore, increased mechanization of many job tasks has cut down on the amount of occupational physical activity even among many blue-collar workers (Lallukka *et al.*, 2008; Caban-Martinez, 2007; Brownson *et al.*, 2005). Several studies have found that the prevalence of obesity is indeed higher among blue collar workers especially among low skilled workers (Lallukka *et al.*, 2008; Caban-Martinez, 2007; Brownson *et al.*, 2005; Ball & Crawford, 2005). For example a Dutch study found that the prevalence of obesity in the construction industry was higher compared to the general population (Groeneveld *et al.*, 2008) Consequently CVD rates are high among this group (Fodor *et al.*, 2006).

Obesity thus is a safety issue which needs to be taken into serious account by employers of this sector. Similarly, workers occupied in heavy industry which operate heavy equipment are at especially high risk for accidents especially if they are obese. Obesity has been suspected to increase the risk of certain conditions such as musculoskeletal disorders, asthma and vibration-induced injury (Schulte *et al.*, 2007). It has also been found to modify physiological responses to neurotoxins and immune responses to chemicals many of which are found in the occupational environment in which blue collar workers are employed (Schulte *et al.*, 2007).

Although in the past obesity and other CVD determinants were more common among higher socioeconomic groups, lately the association has changed especially in countries of the western world making obesity more common among lower socioeconomic classes (Bobak *et al.*, 1999). It has been said that obesity is increasingly becoming a disease of the poor (Monteiro *et al.* 2004). Blue collar workers often come from lower socioeconomic backgrounds (lower income, lower education) thus counter obesity interventions for this particular group of employees need to target individual health related beliefs and practices and should follow a family approach.

Another example of blue collar workers who are particularly prone to obesity are construction workers. Both in the EU and in the USA construction workers are at a particular high risk of suffering work related accidents related to falls (for example falls related to ladder use) (Wanjek, 2005). It has been hypothesized that obesity – which is high among this group – could contribute to the large number of occupational accidents among construction workers. Although there is legislation in many EU member states concerning the establishment of eating areas for construction workers and the provision of drinking water very few examples of legislation being enforced are found (in Denmark for instance). Construction workers are forced to eat from roadside food vendors mostly selling fast food and soft drinks.

The obesogenic factors which could influence obesity outcomes among these employees are:

- Personal beliefs and attitudes towards physical activity and proper nutrition
- Occupational environmental factors: Lack of healthy food options in canteen, lack of onsite physical activity facilities, limited availability of nearby (and safe) recreational areas, green spaces, parks, sports grounds etc, lack of onsite food canteens, not enough space -at the workplace - high levels of congestion at the workplace
- Lack of a workplace health promotion policy
- Lack of staff to implement workplace health promotion activities at the workplace
- Occupational stress
- Lack of control over ones work
- Inadequate legislation concerning eating areas and work cafeterias
- Easy access to unhealthy food options – i.e. fast food, takeaways, vending machines

Table 3.5: Preventing obesity industrial employees, construction workers, etc.

Authority Level Occupational Health and Safety	Individual Level	Management Level (Environmental/ Organizational issues)
<ul style="list-style-type: none"> • Monitor and regulate work conditions according to statutory OHS legislation • Ensure that workers have access to rest areas • Ensure that statutory regulations concerning onsite provision of food and water are met • Ensure that workers have access to occupational physicians who conduct regular health checks 	<ul style="list-style-type: none"> • Health promotion campaigns for the prevention of obesity need to address individual beliefs and attitudes of blue collar workers concerning physical activity and nutrition. Interventions should follow a family approach. Some examples are: <ul style="list-style-type: none"> ✓ Skills development sessions ✓ Individualized counseling on eating strategies, recipes, barriers to eating healthy, eating habits, etc. including setting individual goals and a clear plan for monitoring success ✓ Access to an Information Center – access to printed material - with the ability to obtain individualized information and support in the way of Quick Tips. ✓ Allow participants to self-monitor progress against well defined and measurable objectives, i.e. use pedometers to monitor physical activity progress and dietary cards to measure food intake ✓ Information days and event days with the participation of workers' families ✓ Excursions including the whole family 	<ul style="list-style-type: none"> • Seek cooperation with workers' associations to provide large scale health promotion programs over a long period of time • Ensure that onsite canteens are able to offer healthy and cheap food options • Install vending machines with healthy food options • Explore the possibility of providing workers with reduced membership fees for fitness centers near their homes or worksite • Promote the use of bicycles, if feasible

3.4. Preventing obesity in large companies and SMEs

Workplace Health Promotion activities take place mostly in large companies where human and financial resources are easier to secure. For example the provision of an occupational physician is mandatory in most EU MS for enterprises employing over 50 workers. Occupational physicians are in a unique position to initiate WHP activities in large companies to the disadvantage of SMEs. To date, the majority of resources in occupational health, as well as workplace health promotion have been used to address the needs of larger enterprises. However, the situation in SMEs is different from larger enterprises, and there is widespread recognition that delivering workplace health services to SMEs and the encouragement of better workplace health practice are major problems for this vast sector which are yet to be adequately addressed (Healthy Employees in Healthy Organizations, Recommendations for Promoting Workplace Health action, 2001).

The unique characteristics of SMEs call for specialized and directed action which begins with raising awareness among employers about obesity at the workplace and strengthening networking between individual SMEs and various statutory, national and European organizations.

The role of national Health and Labor Ministries is central in raising awareness about the negative impact of obesity in the workplace and disseminating recommendations and best practice for preventing obesity among workers supporting these activities with necessary policy measures and funding. An important role in raising awareness among employers of SMEs can be played also by universities and specialized university departments (i.e. occupational physicians).

Intermediary level organizations such as: employer and employee organizations, trade unions and trade associations and also health insurance companies both private and public are in a unique position to create networks with SMEs disseminating information about the negative effects of obesity at the workplace and initiating actions based on best practice. Intermediary level organizations have a clear understanding of the problems of

the companies they represent and can thus effectively communicate with employers and initiate networking with the aim of promoting counter obesity activities under their umbrella. In addition, these organizations often have the most direct financial interest in maximizing gains and benefits from program practice (Healthy Employees in Healthy Organizations, Recommendations for Promoting Workplace Health action, 2001).

In conclusion employees of SMEs as well as self employed workers are at a higher risk of losing out on the benefits of organized WHP programs for the prevention of obesity. In order to improve this situation the following are recommended:

- Awareness raising activities concerning the negative influence of obesity on workers' health undertaken by: research and educational institutions such as university departments (i.e. occupational physicians), national and European bodies involved in WHP and occupational health (European Network of Workplace Health Promotion and their national contact points, the European Agency for Safety and Health at Work – EU-OSHA and their national focal points, the EU, National Ministries of Health and National Ministries of Labor). The role of intermediary organizations is also important in raising awareness through direct communication with its members and the organization of events and the dissemination of material.
- OHS policies directly or indirectly related to obesity or the obesogenic environment of work (i.e. shift work, onsite food policy for nurses, policemen, firemen, construction workers, security officers etc) need to take into consideration the particular needs of SMEs and self employed workers so as to enable the smooth adoption of policies without posing additional costs to the employer. The responsibility of such activities stand with national OHS organizations and Ministries of labor. The role of intermediary level organizations in raising awareness of statutory bodies towards the particular needs of SMEs and self employed workers is crucial.
- The design and evaluation of pilot implementation projects for the prevention of obesity at the workplace which could run simultaneously in many companies under the umbrella of intermediary organizations

- Dissemination of best practice and recommendations suitable for different workplaces is important and could be organized both by national statutory bodies and intermediary organizations.

3.5. Preventing obesity at the workplace – Considerations per region

Differences between regions need to be taken into consideration when implementing counter obesity interventions at the workplace. Certain regional characteristics and factors call for specialized actions which differ according to location and country. Some of these factors will be analyzed in this section.

Obesity rates in each country need to be taken into consideration when planning WHP interventions as well as differences between men and women. Similarly the causes of obesity in each MS will differ between regions and these different causes have implications for counter obesity interventions. For example a Eurobarometer study revealed that although the levels of physical activity while at work overall were very low across the EU (18% of respondents declared that they perform some physical activity while at work, while 14% perform little physical activity. Almost 45% of the people interviewed even declared that they perform no physical activity at work), important variations existed between countries. Findings showed that although 19% of Dutch citizens and 31% of Irish citizens declared that they perform no physical activity at work, the corresponding percentages of physical inactivity were as high as 55% in Greece and Croatia and 61% in France (European Commission, 2006).

Although health related statistics do exist for most EU countries there is a lack in health related information in many MS mostly concerning health related behaviors such as level of physical activity, nutritional behavior, eating habits of workers etc. Causes of certain health conditions such as obesity may vary between MS, thus it is important in the absence of reliable information to determine causes to seek through questionnaires answers which are best suited for a given situation.

Nutritional behavior and dietary characteristics also differ significantly between regions (fruit and vegetables are more readily available and cheap in southern Mediterranean countries compared to Scandinavian countries). Promoting the consumption of fresh but expensive fruit and vegetables in Scandinavian countries for instance may not be the best choice for planners who could maybe consider the promotion of milk, yogurt, whole meal or low fat products.

Environmental factors such as urban planning, urban spaces, availability of parks, cycling and walking paths determine to a great extent the type of interventions and activities proposed for the prevention of obesity at the workplace. For example although cycling to work is promoted as best practice for the promotion of physical activity in countries such as Cyprus or Greece implementing such an intervention would be difficult due for example to the lack of infrastructure (lack of cycling paths) and heavy traffic. An intervention promoting the use of bicycles among workers needs to take into consideration the feasibility of such a program in different regions and examine alternative solutions. For example alternative actions could include: urging employees to take their lunch outside work areas, dedicating a lunch break area in the workplace, promoting the use of stairs, creating employee walking groups.

Similarly, promoting walking in cities such as Athens would not be as successful because of the lack of walking paths, the lack of parks, traffic congestion, safety issues etc. Alternatives need to be explored in these cases such as promoting the use of gyms through offering reduced memberships or organizing weekend outings etc. Another example would be promoting of use of public transport among employees in a country such as Cyprus since there is a lack of such a system.

In addition to environmental issues which need to be considered when applying best practice for the prevention of obesity one needs to consider cultural factors. For example bringing food to work is not as widespread in certain Mediterranean countries such as Greece or Cyprus compared to the UK.

Weather conditions could also affect the uptake of activities such as cycling to work, walking groups, having lunch outside etc

Finally, workplace health promotion programs targeting obesity at the workplace are more successful when implemented within a supportive policy framework which recognizes the workplace as an obesogenic environment and provides incentives for the implementation of counter obesity activities. Supportive policy does not exist or is not at the same level in all EU member states. Thus in certain countries efforts should focus more on raising awareness among policy makers and employers about how the workplace contributes to obesity.

Summarizing the regional factors which need to be considered in workplace health promotion targeting obesity at the workplace are the following:

- Prevalence and determinants of obesity across regions and between sexes
- Eating habits between regions
- Cost of different types of food (i.e. fruit and vegetables are expensive in certain parts of the EU while fast food is readily available and cheap)
- Cultural differences may affect the choice of WHP activities and the application of best practice in different regions – (i.e. taking your own food to work is not as widespread in Greece as it is in Scandinavian countries - Ta NEA, 5 January 2009)
- Different weather conditions (i.e. extreme heat or cold could influence the choice of WHP activities)
- City infrastructure (i.e. traffic congestion, safety, lack of cycling paths, inadequate transportation system, urban spreads and urban planning).
- Policy differences between regions (lack of awareness of WHP among national statutory organizations, lack of support from national bodies)

3.6. The role of local communities

The causes of obesity are multiple extending far beyond personal behavior thus its prevention should include the wider obesogenic factors of contemporary society. In this context factors which are outside the strict workplace environment should be examined as to their power to influence or support counter obesity activities at the workplace. Some of these factors will be outlined below.

Local communities which encompass enterprises and other workplaces can play an important role in the prevention of obesity by integrating policy changes directly into people's daily lives indirectly affecting workers. For example local policy changes could help increase physical activity over the long term by making physical activity an easier choice. Reducing the speed of traffic and providing safe cycling and walking routes could help workers chose a more active way of reaching or leaving work thus increasing physical activity levels (WHO, 2005). Local policies concerning neighborhood design, the location of schools and businesses and how local leaders assign priority to cars, cyclists and pedestrians all affect people's ability to engage in physical activity and active living. Connecting workplaces with mayors and other elected officials as well as city employees can help create the necessary understanding as well as prove the political legitimacy and technical support needed to integrate urban planning and public health policies in a way that supports quality of life actions for all working population.

Transport settings can potentially provide an excellent opportunity of integrating physical activity into daily life. However, this potential has not been explored in depth. In most countries, cycling and walking have generally been marginalized in transport decision making especially in Mediterranean countries. In western European countries, citizens cycle on average about 0,5 km and walk about 1 km but travel 27,5 km by car daily. Only in a few countries such as the Netherlands and Denmark does cycling account for a sizable share of daily mobility. The levels of cycling and walking achieved by these countries indicate that there is good potential for more trips being made on foot or by bicycle in other countries. Removing barriers to physically active transport can be achieved, for example, by providing adequate infrastructures for cycling and walking,

reducing speed limits in urban environments, re-allocating space to cyclists and pedestrians. Urban planners can also work with local communities so as to ensure that civil services and industrial and commercial zones are within distances that can be covered on foot or bicycle and providing adequate cycling and pedestrian paths or ensure that public transportation to these areas is frequent and convenient (WHO, 2006).

Local policy makers can also indirectly influence nutritional choices by cooperating with local food producers providing healthy food options for workplace canteens or local food vendors.

3.7. Making use of incentives

One of the main instruments at national or regional level to support the creation of healthy workplaces is using incentives that affect the employers, who are the agents for delivering healthy policies. There are two ways based on rewarding mechanism to encourage employers to take action in creating healthy workplaces: using worksite health awards and funding health programs.

Worksite health awards

The first instrument is based on establishing awards for workplace health promotion programs, which recognize achievement and excellence in becoming a healthy workplace. Such awards could consist in an acknowledgement with an image return for the company, or in a grant for the organization's management and employees.

This system could encourage companies to strive for excellence in promoting health-related programs and policies (WHO 1999) and could assist in strengthening and maintaining a national healthy workplace initiative.

Examples of successful award initiatives are:

- Well Workplace' Awards Initiative,
http://www.welcoa.org/presskit/well_workplace.php

- Well City USA, http://www.welcoa.org/presskit/well_city.php
- The Singapore H.E.A.L.T.H Award,
http://www.hpb.gov.sg/hpb/default.asp?pg_id=2164
- BEST EMPLOYERS for Healthy Lifestyles Awards Program,
<http://www.wbgh.com/healthy/awards.cfm>

Providing matching grants or tax breaks for employers

The second instrument is based on financial incentives such as matching grants or tax breaks to employers. The mechanism is based on the fact that creating healthy workplaces becomes a part of the company's business. Many employers do not invest in health because although they incur the costs for the programs in full, the impact on the health of employees can often be observed only after they have left job for seniority. Governments have to recognize this by splitting, for example, the costs between all parties who benefit from the programs - the employer, the employees, and the government.

One way of splitting these costs is to use *matching grants*. Governments could provide matching grants to employers who undertake health promotion activities. The costs would thus jointly divide between government and employers. This goal could be reached through a less direct way involving Workers Compensation Authorities or National Insurance Systems. In this approach a *tax break* could be considered for that companies that promote activities or programs focusing on reducing obesity at the workplace (Fuemmeler, 2007).

Incentives for promoting healthy behavior among employees

Generating high levels of participation and engagement is essential to the success of obesity prevention programs at the workplace. At the same time individuals' behavior is significantly affected by the structure of incentives that they face. For example it is well known that raising the price of cigarettes can be a powerful instrument for reducing smoking (WHO, 2004), and reducing out-of-pocket costs of screening tests increases the participation level (Baron, 2008). In the same manner incentives-based strategies can be

used to increment employees' participation in health programs at the workplace. Financial incentives can thus be included as part of a multicomponent intervention (Katz, 2005).

It should be noted that economic incentives are effective only for promoting simple and well defined healthy behavior, while there is insufficient evidence to affirm that they are effective for long-term lifestyle changes (Kane, 2004). This is explained by the fact that economic incentives are only extrinsic motivators (Deci, 1985). Hence, it's necessary to continuously support employees to motivate them to engage in healthy behaviors rather than exceeding with external reinforcement. Any economic incentive has to be perceived by the consumer as temporary support towards a personal goal. Otherwise it does not promote the personal responsibility and autonomy of the consumer for his own health, but on the contrary it may foster dependency on it. A way to enhance the participation of employees and to reduce possible conflicts between them is using rewards based on group performance rather than on individual performance (Paul-Ebhohimhen, 2008).

When employees undertake a health program financial incentives can be offered directly in the form of additional payment, reimbursement, reductions of payroll deductions, etc., or indirectly in the form of reduced price services for employees. Examples of this last form are low cost healthy food and beverages served in the canteens and cafeterias, low cost gym or pool enrollment, coupons toward the purchase of products from local grocers or farmers' markets, gift certificates for sporting stores or shoe stores, bus passes, etc. Also awards or recognitions can be given to individual participants or work groups after achieving the behavior promoted. An alternative to direct financial incentives is to grant time off to promote the participation in a health program. Finally there are incentives based on low budget gadgets that can be offered when employees participate in a health program, or to promote some specific behaviors like in examples given in Table 1.

Table 3.6. Examples of gadgets to promote physical activity and healthy nutrition

(from the program: “Feel better Minnesota”

<http://www.co.ramsey.mn.us/NR/exeres/61CDA552-FF8A-4B54-B2BF-D1F693DF42E3,frameless.htm?NRMODE=Published>)

Physical activity incentives	Nutrition Incentives
Backpack	Apple corer
Bicycle	Apron
Bike helmet	Carry-along food containers to bring food to work
Book of hiking/biking trails	Coffee mug
Cap or Ear muffs	Colander for rinsing fresh produces
Exercise Ball	Cookware
Fishing tackle or pole	Cooler
Gardening equipment	Cutting Board
Gym bag	Cutlery
Hand weights	Dried fruit samples
Healthy magazine subscription	Food strainer
Heart rate monitor watch	Free lunch
Jump rope	Healthy Cook Book
Pedometer	Instant-read food thermometer
Reflective bands/tape	Knife sharpener
Reflective vest	Lunch box or bag
Socks	Orange Peeler
Sunglasses	Thermos
Sun Screen	Vegetable brush
Sweat bands	Vegetable peelers
Water bottle holder	Vegetable steamer
Umbrella	Water bottle

3.8. The role of the media in preventing obesity at the workplace

The media play an important role in normalizing/de-normalizing behaviours and influencing beliefs and attitudes towards several issues, including lifestyles. They have a weight in shaping the socio-cultural context and moving to socio-cultural change. On the one hand, journalists, editors, and broadcasters act as opinion leaders and have the power

to condition perceptions, opinions and actions; on the other hand, they can be equally influenced by stakeholders, in order to communicate messages and to produce cognitive and behavioural change.

Moreover, alliances can be built between stakeholders and the media in order to achieve communication objectives.

The media can have different positions towards health issues in general and lifestyles in particular:

- They can give information in the opposite direction, for commercial purposes (e.g. advertising unhealthy food).
- They can give information going in a similar direction, for commercial purposes again (e.g. promoting the image of fitness and thinness, in order to help to sell cosmetics, sports equipments, integrators, dietetic products, etc.).
- They can be interested in / sensitive towards health issues and be prone to collaborate with stakeholders in spreading health information.
- They can be put into action in order to promote a specific project by giving visibility to it (through press releases, press conferences, interviews).
- They can be used to create and disseminate health education messages to the target (e.g. mass media campaigns).

The media can act as allies in promoting health, thanks to their high potential to disseminate information to a wide audience, to reach particular segments of population and to create effective messages, but, for the same reasons, they can also act as antagonists, when they spread misleading information or influence people in the direction of unhealthy behaviours.

Several strategies can be put into action in order to involve the media in preventing obesity at the workplace:

1. Influencing media outlets.

Objectives: - raising the media's attention and make them talk about the issue;

- giving visibility to projects and interventions.

Spreading press releases is useful to promote specific actions, to put relevant issues in the media's agenda, and to contribute in creating a favourable attitude among the population towards the prevention of obesity at the workplace. The content of the press release mustn't be general: it has to be related to news, such as a project/intervention/policy or the results of a recent research. The expected outcome is that the media talk about the problem through press articles, radio and TV news-reels, interviews etc., telling what is being done to tackle it and raising public's awareness.

Organizing press conferences is useful to raise the media's attention towards specific events such as the launch of a project, the evaluation of an intervention, a convention of experts, etc., and it is the occasion to give information about the issue.

2. Building permanent alliances.

Objectives: - learning by the media how to communicate effectively;

- increasing media's scientific literacy in order to disseminate correct information;*
- promoting collaboration between stakeholders and the media.*

Scientific knowledge is complex and technical jargon is very specific. For these reasons, professionals involved in obesity prevention at the workplace may find it difficult to divulge information in a way that it can be correctly understood and utilized by a larger public. For the same reasons, the media can find it difficult to correctly report such information. That's why it could be useful to create opportunities to confront points of view and share competences, such as workshops, roundtables, etc., between the media and other stakeholders. This may help in finding a common language to effectively communicate health issues and creating partnerships with the purpose of promoting obesity prevention at the workplace.

3. Delivering parts of the interventions through the media.

Objective: increasing the effectiveness of health promotion/health education interventions

The media can be used as specific methodologies to deliver interventions for the prevention of obesity at the workplace. For example, individually-tailored magazines can be developed and distributed to employees in order to give personalized information and motivate behaviour change; counselling can be offered through newsletters and tailored web pages, etc. Special software packages are available with the purpose of elaborating a high quantity of information and developing personalized products. The advantage is to deliver personalized treatments to numerous target groups.

4. Planning and implementing public communication campaigns.

Objective: promoting environmental, socio-cultural and behavioural change among communities.

“Public communication campaigns ... are purposive attempts to inform, persuade or motivate behavior changes in a relatively well-defined and large audience, generally for non-commercial benefits to the individuals and/or society at large, typically within a given time period, by means of organized communication activities involving mass media and often complemented by interpersonal support” (Rice & Atkin, 1994). Research has shown that targeted, well-executed health media campaigns can have small-to-moderate effects not only on health knowledge, beliefs, and attitudes, but on behaviours as well (Noar, 2006).

The media have the potential to reach wide populations as well as segmented audiences. They work in raising public’s awareness towards the problem, creating a favourable attitude towards the prevention of obesity at the workplace, making pressure on decision makers for the implementation of health promotion policies, spreading relevant information and motivating behavioural change.

Planning an effective public communication campaign requires:

- an in-depth analysis of the target population, concerning demographic and psychographic information, as well as their attitudes, wants and needs related to the issue;
- the segmentation of the audience, in order to divide the target population in more manageable groups with common characteristics;
- the choice of the media channels;
- the design of the messages.

Effectiveness of communication campaigns requires high levels of reach and frequency at which messages are delivered. Moreover, most steps of the design and implementation of a campaign require high professional competences that often must be searched among external agencies. For these reasons, campaigns must be consistently funded.

3.9. Best practice recommendations for the prevention of obesity at the workplace

Regardless of workplace size or sector an in depth evaluation of existing interventions both in the USA and the EU revealed the following recommendations concerning successful obesity prevention activities at the workplace.

Recommendation 1:

Conduct needs assessment

A comprehensive needs assessment includes:

- (a) Examining the health status of employees and identifying the health problems which need to be addressed
- (b) Analyzing the specific workplace setting to determine how it may influence obesity outcomes among employees

Recommendation 2:

Aim for changing behaviors which influence weight outcomes

Besides activities aiming merely to raise awareness, it is necessary to address attitudes and behaviors related to physical activity and nutrition so as to accomplish

behavioral change, such as interventions seeking to develop new skills. Such activities, which have been proven successful in achieving behavioral change, include self-help manuals and tailored information and materials, demonstration of the preparation of healthy foods, individual counseling and group trainings in diet, exercise and behavior modification, use of audiovisual materials, dietary assessment and behavioral feedback.

Consider also that some people are more ready to change compared to others and try to adjust activities to different stages of change.

Recommendation 3:

Implement both physical activity and nutrition methods to address weight control issues

Recommendation 4:

Include environmental and organizational change as part of the intervention plan

Offer the support needed to make change of lifestyle behaviors plausible and easier:

- Address issues of work organization, work overload, long working hours, occupational stress, etc. and re-organize shifts
- Improve food selection in company cafeterias
- Offer onsite healthy food options – ticket restaurants, vending machines and provide food storing facilities or food preparation facilities
- Provide break areas
- Improve shower/change facilities
- Consider employee fitness centers or physical activity classes

- Recommendation 5:** **Negotiate with the management the possibility to carry out most of the planned interventions during work hours**
- Recommendation 6:** **Extend the intervention period over one year**
Behavioral change is a slow process. Thus, activities should extent over a long period of time, preferably over one year. Activities for the prevention of obesity at the workplace should be part of a general policy for the promotion of employee health and wellness.
- Recommendation 7:** **Allow participants to self monitor their progress against well defined and measurable objectives**
For example, offer pedometers to monitor physical activity progress and dietary cards to measure food intake, or give personalized feedback based on individual progress reports.
- Recommendation 8:** **Emphasize employee participation**
- Establish a committee of employees to participate in planning and implementing the intervention
 - Seek feedback from employees during implementation
 - Monitor participation and investigate reasons for drop out
- Recommendation 9:** **Use simple and easy to read language, visuals or explore alternative dissemination methods**
For instance, PCs and mobile phones could be successful for employees with low literacy skills or migrants.

Recommendation 10: **Establish incentives for employees to increase participation and employers to encourage commitment to workplace health promotion activities**

Recommendation 11: **Conduct continuous evaluation**

Evaluation is essential to examine how well the program is progressing and may include achievements and problems useful for redesigning the plan. It may use multiple data sources, be based on the same tools of the needs assessment and include direct feedback from participants.

CHAPTER 4: EVALUATING OBESITY INTERVENTIONS IN THE WORKPLACE

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Evaluation of Workplace Health Promotion (WHP) programs aiming at tackling obesity at the workplace, as of any other WHP programs, is a clear, distinct and important part of the overall program, and should be regarded as one of its main parts.

Evaluation of WHP programs was not always enjoying the benefits of being included, as now it does, within almost any WHP program, and it had been considered for a long time an expendable part whose omission could cut down costs a bit. The change in attitude happened due to several reasons of which two are most relevant namely:

- The scarcity of resources to be invested in WHP programs made that those committing resources (managers of enterprises, funding agencies, national ministries etc) started to require tangible proofs that the programs they are investing in do actually produce a proven change either in the economics of the company or in the health of the employees.
- The same scarcity of resources pushed forward the need to have well assessed WHP programs, with their effectiveness, efficiency and efficacy well determined, so as be able to document and further promote those programs which provided significant return on the investment made.

Without overemphasizing the current status of the role that evaluation of WHP programs is really playing, we could say that most of the programs do have, one way or another, a minimal provision of at least monitoring of the program.

Further bellow, and as a starter of this chapter, we will present the most important categories of evaluation with their basic definitions; however the chapter as a whole will be further concerned with only two types evaluation which the authors of this chapter consider are a pre-requisite of any WHP program, and they are Process Evaluation and Impact Evaluation.

4.1. Evaluation – types and definitions

When speaking about evaluation, both in general for health programs and in particular for WHP programs, there are six types of assessments or analyses which are considered evaluation (Michelle Issel, (2004), Jones and Bartlett Publishers, Health Program Planning and Evaluation-A practical, systematic approach for community health, 1: 18-20).

Needs Assessment is the first category employed by any WHP program and it usually deals with at several types of data of which the most relevant are concerned with:

- the health of the employees (assessed by using the health reports and files of the company),
- the perception of the employees regarding their own health but also on other matters such as the desired WHP activities (assessed by using both qualitative means as interviews and focus groups but also by performing surveys)
- the occupational risks which the employees are exposed to (assessed via various types of risk assessment procedures)
- the economics of the company (as assessed by various indicators such as absenteeism, turnover, productivity)

Needs Assessment collects, assembles, analyses and prioritizes this data, data concerned with a particular group of recipients within a particular setting (target group) so as to enable program managers to identify the main problem to be tackled by the WHP program as well to get a hint about the possible shape of the future program. It ends by providing the program manager with a prioritized set of problems, with a set of activities to be performed, and possible instruments to be employed, and a hint of what are the means to be used so as to get employees involved in the program (which is one of the most delicate matters in this type of programs).

The second type of evaluation is Process Evaluation, or Monitoring, and this is a type of evaluation which focuses on the degree to which the program has been implemented as planned, meaning whether the planned activities have been unfolded in the right sequence, within the agreed timeframe, at the right time, in the right pace and so on.

According to some authors this type of evaluation is also concerned with assessing the quality of the program implementation as well as with the satisfaction of the program participants.

The third type of evaluation is Effect Evaluation, more commonly known as Impact Evaluation and Outcome Evaluation, which seek to determine the effect of the program on those who participated at the program; it answers the key question of whether the program has made a difference or not on the target group. Impact evaluations are those that focus on the more immediate effects of the program, whereas outcome evaluations may have a more long-term focus. However we must mention that these terms (“impact evaluation” and “outcome evaluation”) are used interchangeably in the evaluation literature and that their meanings could lead to confusion.

A fourth type of evaluation is the Efficiency Evaluation and it scrutinizes the costs associated with the WHP program. This type includes a variety of specific cost-related evaluations such as:

- cost-effectiveness analysis (when program planners want to compare one program with another so as to decide which produces the greatest benefit for the least expense-performed by comparing only the costs of similar programs for achieving a specific outcome),
- cost-benefit analysis (when program planners want to determine whether the program is worth its cost by comparing the monetary values of both benefits and costs)
- cost-utility analysis.

The fifth type of evaluation is Comprehensive Evaluation that includes analyzing data coming from all previous ones (Needs Assessment, Process, Impact and Efficiency Evaluation) and it is rather a seldom performed evaluation mostly used for prototype programs.

The sixth type of evaluation is Meta-Evaluation, when the evaluation data coming from more programs (though addressing the same problem) are analyzed. The purpose is to gain insights into which program approaches had the most effect and to determine the maximum effect that a particular programmatic approach has had on a particular health problem.

4.2. Evaluation-common pitfalls

When proceeding for designing the evaluation of a WHP program managers and planners need to take account of the most common pitfalls which could hamper the aim of having a reliable and feasible evaluation package as part of the program (David H. Chenoweth (2007), Human Kinetics, “Worksite Health Promotion”, second edition, 8: 115-130).

Some of the common pitfalls include the following:

- Having no goal or vision for doing an evaluation – it means in fact having no clear concept of why an evaluation is needed, what components will comprise, and who can benefit from it;
- Having unrealistic expectations – like for example the often occurring situation when a program manager expects that a single evaluation will tell him how to turn a sub-standard program into a model of good practice;
- Having inadequate financial resources – a 5 to 10% of the overall program is generally considered as an acceptable budget for the evolution package;
- Inaccessibility to relevant data or inability to obtain it – this is one of the most often causes of unsuccessful evaluations and it stems from the difficulty to implement new routines for gathering data into an already existing company which has its own deeply rooted procedures and does not easily change them;

4.3. Evaluation-stakeholders identification and assessment

Before evaluating a program any evaluator must know what that program is about and how it works. Thus the first thing to do is when planning any type of evaluation is identify all individuals and groups which have a saying and a stake in how the WHP program is being performed but also in further knowing the results of the program after

its evaluation. This is widely acknowledged within the project management literature as stakeholder analysis and it is the first step usually followed by the stakeholder analysis.

In order to identify the stakeholders the evaluator must address several questions and follow several lines of investigation presented below:

Questions addressed by the evaluator	Factors to be taken into account by evaluations
<ul style="list-style-type: none"> - Can a WHP program provide measurable benefits to employees and an organization? - To what extent do all participants benefit from a WHP program? - How could we tell whether a WHP program has more impact on direct benefits or on indirect benefits? - Can the WHP program really impact economic indicators such as productivity and its derived measures such as absenteeism, presenteeism, on-the-job injury, and short term disability? - What types of programs are more cost-effective in a company with a demographic profile similar to our company/workforce? 	<ul style="list-style-type: none"> - The administrative structure of an organization's decision making style with all its subsequent components: <ul style="list-style-type: none"> - Formal authority - Organizational structures and procedures - Control of decision process - Control of knowledge and information - The rationale for doing an evaluation - including who is paying for it, what is the scope for it, what are the expectations (open or hidden agenda like for example exposing and documenting an ill working program) - The history and maturity of the program being evaluated - The political realities surrounding the evaluation

Whatever the method used and the analysis proposed the end result should be a list of all of those who have something to win or to lose from the WHP program and from the evaluation results. Bellow you'll find a list of possible stakeholders, without excluding others which possibly have not been mentioned:

Primary stakeholders	Secondary stakeholders
<ul style="list-style-type: none"> - Managers (supervisors, middle-management, top-management) - Employees (depending on whether the WHP program is developed in the whole enterprise or only in one department) - Manager of the WHP program (either external consultant or in-house expert/employee) - Staff of the WHP program - Shareholders of the enterprise - Community in which the enterprise is located 	<ul style="list-style-type: none"> - Media (usually used for promoting the results of the program) - Suppliers of occupational health services (but also WHP services) - Government (Local, Regional, National) - Local Health Agency - Local OSH Agency - Insurance Company used by the enterprise

The next step in dealing with the stakeholders is to assess the needs/expectations of them. Agle et al. (1999) offer an alternative approach: they discuss the issue in terms of the salience of stakeholder claims. This addresses the issue of ‘who or what really counts’ in the development of a WHP program; why does an organization give priority to some stakeholders, and not to others? Salience, they argue, results from three attributes:

1. The power the stakeholder has over the actions of the organization, broadly defined as their ability to influence a decision;
2. The legitimacy of their claim over the organization, which can be based on either legal (e.g. contracts, licenses etc.) or moral grounds;
3. The urgency with which an organization feels it needs to satisfy stakeholder claims or respond to their demands.

As already stated before in this chapter further below are presented in greater detail two out of the six types of evaluation presented above and they are process evaluation and impact and outcome evaluation. We have decided that out of the 6 possible ones it is

these two that are generally relevant for WHP programs and particularly for the ones that GPOW is dealing with (the preventing obesity ones).

4.4. Process evaluation

Process evaluation, monitoring evaluation, implementation evaluation and formative evaluation are terms that refer to very similar processes and involve similar sets of activities (Michelle Issel, 2004). One of the most upfront definitions we have found for this type of evaluation is the one Patton (1997) issued, namely that process evaluation is “*... finding out if the program has all its parts, if the parts are functioning, operating as they are supposed to be operating*”.

Bellow you will find a collection of the most relevant definitions the evaluation literature used for Process Evaluation.

Scheirer (1994)

“*... verifies what the program is and whether or not it is delivered as intended to the targeted recipients ...*”

Rossi (2004)

“*... it does not, however, attempt to assess the effects of the program on those recipients, such assessment is the province of impact evaluation ...*”

Rossi (2004)

“*... Program process evaluation is a form of evaluation designed to describe how a program is operating and assesses how well it performs its intended functions. ...*”

Process evaluation does not represent a single distinct procedure but it represents a family of approaches, concepts, methods and it focuses on operations, activities, functions, performance, resources etc. It could be characterized as employing both qualitative and quantitative methods and it mainly refers to 2 aspects which are the Coverage with services (of the TG) and the process of delivering these services.

In this regard we are presenting below a table enclosing possible methods to be used when performing a process evaluation, as well as some indications when to use the respective method.

Method	When to use it
Activity log	When you have a list of actions that are discrete and a common understanding exists for what those are; it needs to be populated with quantitative data
Organizational record	When you have existing records that capture the information needed and can legally access those records; it needs to be populated with quantitative data
Observation	When you have access to data on interpersonal interactions or sequence of events
Questionnaire	When you need to collect data from reliable respondents and have a reliable and valid questionnaire; it needs to be populated with quantitative data
Interview	When you have time and you need qualitative data or the questionnaire is not appropriate for those respondents you need to get information from
Case study	When you need to understand the full set of interactions around the program and the context in which is functioning

In order to better assess the scope and purpose of the process evaluation it is worthwhile to mention that it is usually answering to the following questions (Rossi, 2004):

- How many persons are receiving the services?
- Are those receiving services the intended targets?
- Are they receiving the proper amount, type and quality of services?
- Are members of the target group aware of the program?
- Are resources used effectively and efficiently?
- Are participants satisfied with their interaction with the program personnel?

Process evaluation is usually playing two types of roles and they are as follows:

1. Stand alone evaluation

- For a new program to see whether the operations/activities are suitable, well sequenced etc (mostly designed for the purposes of the managers);
- For a new program so as funders understand what is going on during the program (built as a formative evaluation and mostly designed for the purposes of the funders);

- For established old programs, already known as being effective, to assess whether the service is delivered properly.

2. Process evaluation as a complement of the Impact (& Outcome) Evaluation

- It is not generally advisable to conduct an impact evaluation without a process evaluation, at least a minimal one. Because initiating, operating and maintaining a WHP program is an extremely complex task, due also to the newness of these programs, all impact evaluations do require a process evaluation to be performed (so as to link the impact measured on the target group with the quantity/quality/timing/etc of services offered).

Various stakeholders involved in WHP programs have various agendas when interpreting the results of a process evaluation however in theory there should be considerable overlap of their purposes. Ideally, the monitoring activities undertaken as part of the overall evaluation, should meet the information needs of all these groups. However one must be aware that still there different angles and approaches when proceeding for a process evaluation and there should attention paid to at least three types of perspectives. They are described below:

Process evaluation from the Evaluator's Perspective: in this regard it is considered as essential for understanding and interpreting impact findings. Knowing what took place is a prerequisite for explaining or hypothesizing why a program did or did not work. Without process monitoring the evaluator is working blindly with no real arguments for deciding whether the program needs to be extended, reduced or preserved as it is.

Process evaluation from an Accountability Perspective: this is a particular relevant perspective for those WHP programs funded by the enterprise itself, and the approach taken is that funders/sponsors need to constant information from the program managers and evaluators. Moreover, for those programs funded by transnational funding bodies (like the European Commission), or national funders (like ministries of labor, health, economy etc), it is impossible to imagine it without the scrutiny of these funders, and usually process evaluation here is almost constantly joined by impact (and outcome) evaluation.

Process evaluation from a Management Perspective: this is a vital perspective during the implementation and pilot testing of new programs, especially innovative ones, and therefore it has a particular importance for WHP programs, again given their newness. No matter how well planned such programs may be unexpected results and unwanted side effects often surface early in the course of implementation (Rossi, 2004).

4.4.1 Objective, indicators and criteria for process evaluation

One of the main factors influencing the process and results of the evaluation is the way objectives of a program are being built, and whether they have been built with ease of evaluation in mind or not. Therefore evaluation is greatly enhanced when the program it is evaluating contains objectives that are developed according to five criteria listed below (Chenoweth, 2007):

1. Compatibility with stakeholders' values and agenda;
2. Measurability (evaluators can physically measure changes that may occur in the outcome variable);
3. Quantifiability (evaluators can attach a statistical value to the outcome variable);
4. Sufficient intervention timeframe;
5. Realistically achievable.

We will not insist on these characteristics since they are better described in the following chapter dedicated to impact and outcome evaluation.

However a very important factor contributing to a successful WHP program in general, and for those aiming at preventing overweight and obesity at work in particular, is that a program must have both health-related objectives (with the pertaining indicators) but also economic-related objectives. This dual approach is almost a prerequisite for successful programs, and we strongly recommend always that objectives come in pairs like listed below:

- ↳ Objective 1 – Reduce obesity risk levels among male employees as evidenced by at least a 20% increase of the number of employees involved in structured work based physical exercises within 1 year
- ↳ Objective 2 – Improve employee productivity by reducing unscheduled absenteeism by at least 10% within the 6 months

The reasons for this may seem obvious however we want to state that all stakeholders' expectancies must find an objective which responds, within certain limits, to their needs (be they expressed or not).

As for indicators, in a similar fashion and like in any other program also WHP programs need indicators so as to be able to monitor program performance, and in this regard process evaluation makes no exception to this. However a clear distinction has to be made right from the very beginning between the “usually easy to be understood” indicators (decrease of BMI, increased physical tonus, decrease of cholesterol blood levels etc) linked to impact evaluation, and the rather “dry” indicators used in process evaluation.

A different type of difference needs to be made between indicators and criteria. Indicators are generally referred as the “what” part of an objective, and usually are obtained through a mathematical calculation resulted from a formula.

Criteria on the other hand are the values of the respective indicators, and usually are built on administrative basis in WHP programs due to the simple fact that there are no prescriptive values for these ones (except of course the current existing common knowledge among WHP community which says for example that a WHP program new launched in a company will get usually a 30% involvement of the workforce). Criteria serve usually as a reference for the program manager in understanding whether the program is achieving the results with the proposed pace and in the sense they have been planned. The main reason for having them is that without specific before measurement criteria a wide range of performance might be regarded as acceptable and this would be inappropriate.

In order to be more explicit about the differences between indicators and values below there is a table presenting some examples:

Activity	Indicator	Criteria
<p>Increasing the level of <u>physical activity</u> performed by the employees at work and at home:</p> <ul style="list-style-type: none"> ▪ Setting up a fitness centre ▪ Providing a trainer full time employed ▪ Providing bicycle racks ▪ Organizing sports contests (running sessions, skating sessions, trekking sessions etc) in weekend ▪ Providing subsidies for subscriptions at swimming pools or other sports centers 	<ul style="list-style-type: none"> ▪ Number of users of the fitness centre (daily average, monthly totals etc) ▪ Number of users who request support from the trainer (same) ▪ Number of employees coming to work by bike ▪ Number of employees attending sports sessions (per session, per year) 	<p>Fitness centre utilization rate (no users/total) in the first year 20%</p> <ul style="list-style-type: none"> - Increased ratio / year – 5% - Number of skaters involved in company sponsored sessions should be at least 10% in the first year and should grow every year by 5% - Number of workers coming to work by bike should grow every year by 10%
<p>Improving the <u>nutrition</u> status of the workforce by improving the offer of healthy food at work:</p> <ul style="list-style-type: none"> ▪ Refurbishing the canteen ▪ Providing scales within the canteen ▪ Changing the offer of food by having daily a 50% offer of healthy food ▪ Enforcing a pricing strategy for promoting healthy food ▪ Providing attractive packaging of healthy food ▪ Providing caloric intake tags with specific information for each type of food ordered 	<ul style="list-style-type: none"> ▪ Number of employees using scales per day/month ▪ Rate of meals served to employees / day ▪ Percentage of healthy meals made available (out of total offer) ▪ Rate of healthy meals served / day 	<ul style="list-style-type: none"> ▪ The weighing scales should be used by at least 20% of the workforce in the first year ▪ The initial uptake of healthy options – 10% and should increase by 5% per year (of the total number of served meals) ▪ The Canteen should always have at least 50% of the offer (including the vending machines) made of healthy options (properly displayed and labeled of course)
<p>Developing an overarching information & education campaign on topics such as weight control, smoking prevention, physical exercise etc:</p> <ul style="list-style-type: none"> ▪ Organizing training sessions on the Intranet, 	<ul style="list-style-type: none"> ▪ Number of Intranet lessons attended ▪ Number of employees attending face-to-face training sessions ▪ Number of users of scales, BMI indexes, leaflets, brochures etc 	<ul style="list-style-type: none"> ▪ No of health-related entries in top management sessions' agenda per year not less than 12 ▪ No of health-related entries in line management sessions'

Activity	Indicator	Criteria
by providing a package of 10 lessons ■ Organizing face-to-face training sessions ■ Organizing “Information points” where BMI indexes, scales, leaflets and brochures are being provided		agenda per year not less than 12 per each manager ■ No of trained line managers (90 in the first 2 years) in health-related issues ■ No of information and education sessions developed by trained line managers in the first year should be around 1000

4.4.2 Approaches in process evaluation

Before actually describing the stages of the process evaluation, and in order to facilitate the understanding of these stages, it is necessary to unravel the so called Program Theory, the very core concept on which the whole program is based upon, a conceptual plan with some details about what the program is and it is going to work.

A Program Theory is mainly built of three core components which are listed below:

1. Organizational Plan – resources, facilities, personnel etc organized in a particular manner and performing a set of functions, activities
2. Service Utilization Plan – consists of the program’ expectations about how to reach the target group, how to provide services
3. Impact Theory – consists of the assumptions about the change process generated by the program (very much based on the initial NA). There are authors which do group the first 2 components and call them separately as the Process Theory (Rossi, Freeman and Lipsey 1999).

The reason for having these theories and plans described is that process evaluation is looking at all of these 3 components and has developed various approaches and instruments for all of them. However due to the limited scope of this guideline we will only focus on 4 approaches of the process evaluation and they are:

1. COVERAGE – the extent to which the participation of the target group achieves the levels specified in the program design

- Under-coverage (the proportion of the TG that actually participates in it); this is a proportion which is usually below the criteria you settle before the program starts. A good and simple example is the programs where the managers aim for covering the TG (which is for example only the overweight and obese employees) with physical exercises and information in a percentage of 80% over a period of 3 years. This figure (80%) if it is not reached then we are having an under-coverage (of the TG), and this largely due to the fact that these programs attract a lot of the non-members of the TG, which are in fact more prone to get involved in this type of activities, a common finding of WHP programs.
- Over-coverage (the proportion of participants who are not members of the TG); this could happen either at no cost or with additional costs (usually the case) for program managers
- Bias - the degree to which some subgroups (of the target group) participate in greater proportion than others
- Dropouts (more often called attrition rate), meaning the participants which fail to finish an activity they became involved in.
- Main hurdles in measuring coverage are presented below:
- Creaming (selection of the most “success prone” target groups), which is a process very much driven by the need of the program managers to have a successful program, the so called “good example”
- The inability to specify precisely the Target Group
- Here a very important role is played by the Needs Assessment, a very useful method as part of the initial program planning.

The main sources of data for measuring coverage, and in general program participation, are program records (data need to be accurate and reliable), surveys among program participants at regular intervals such as yearly (i.e. the dept. where the program is being unfolded), or in some particular cases surveys performed within the community from which the program participants are coming (i.e. the whole company, or the geographic

area where the employees are coming from). The most important issue to be considered is the easiness of collecting this data which is not always a very simple thing to get; therefore the more are embedded the collecting procedures within the regular procedures of the enterprise the easier is going to be the process of collecting this data. A very simple system to be used, but only where it is already in place is the centralize data management system, when for example if the meals are ordered in the canteen by using the company card (used also for identifying when entering the workplace) then data are automatically collected about the type of meals ordered daily, caloric content etc. The same applies for using the company fitness centre, or other facilities, with data being collected automatically.

A table below depicts the relationship between the coverage, under-coverage and over-coverage (adapted from Michelle Issel, 2004).

	Non-participants at the program	Participants at the program
Not members of the TG	IDEAL COVERAGE	<i>Overcoverage</i>
Members of the TG	<i>Undercoverage</i>	IDEAL COVERAGE

2. ACCEPTABILITY – satisfaction of the program participants with the program itself, a very important ingredient in a successful program.

Acceptability is usually assessed by using both quantitative means (surveys) and qualitative ones (focus groups), and it is a very important indicator of whether the program participants are satisfied with the program or not. The levels of acceptability have a clear impact on the coverage levels obtained by the program and this is a clear indication of whether the initially planned procedures and methods used for getting participants involved are the proper ones or not, and if their implementation is an effective one.

3. Assessing the PROGRAM DESIGN, this is a rather seldom evaluation approach, usually undertaken only by highly experienced evaluators, and especially designed for

programs with poor results but with a rather high level of expenditure. It consists of assessing the following components (however a deeper description of the particularities of performing the evaluation of program design is beyond the purposes of this guideline):

- Suitability (for the target group),
- Feasibility (Resources),
- Acceptability (Stakeholders)

4.5. Impact and Outcome Evaluation

Apart from formative evaluation and monitoring in every programme aimed at health promotion (i.e. propagating physical activity/ healthy diet) or prevention of ill health (i.e. an excess weight) there should be also assessment of its end effects/ results. However, review of literature descriptions of such programmes implemented in various worksites, which was carried out within a framework of GPOW project, showed that their organisers rarely plan and as a result implement such thorough evaluation. Even if such attempts are made, they are full of various mistakes (Evaluation of Policies and Best Practices, 2008). Why it is so important to prepare and implement evaluation of programme's end effects/ results? It is thanks to it we are able to check:

- whether the programme was successful – in other words whether its defined objectives were reached (if not – how much did we fail),
- which of implemented activities have an impact (or not) on achieving programme's objectives – in other words whether they were successful in a type of a programme that was implemented,
- what kind of effects/ changes apart from programme's objectives came up due to programme's implementation,
- whether the programme has been well worthwhile for a company – in other words whether it was paid off.

If evaluation of programme's end results/effects shows that it is successful (planned objectives are reached and it turned out to be beneficial for the enterprise), it is very important from various points of view, namely programme's organisers, an employer and

employees. The first group gains experience from evaluation (is aware what works), gets personal motivation for engaging in such activities and has a proof while persuading an employer to invest and employees to participate in future workplace health promotion/prevention programmes. In other words, an employer is convinced that it was a good investment of money, whereas employees that it was a good investment of time.

4.5.1 Definitions/ terminology

As introduction suggests, evaluation of programme's end results aims to determine programme's effectiveness, efficiency, impact and sometimes also its relevance (Branka et al., 2007). It has to be emphasised that in the literature concerning evaluation of various health promotion/ prevention programmes there is a variety and inaccuracy of terms/ concepts. Nonetheless, the authors of this guideline undertake (according to: Branka et al., 2007; The Health Communication Unit, 2005) the following understanding of listed terms:

- **effectiveness** refers to a degree of achievement of programmes' set objectives (to assess programme's effectiveness outcome evaluation have to be carried out),
 - **outcome evaluation** – is aimed to check what occurred as a result of the programme. It determines whether you achieved the programme's short-term, intermediate and/or long-term objectives,
- **efficiency** is a measure of the relationship between the results achieved and the effort expended, in terms of financial and human resources and time (it is connected with carrying out cost-benefit and/ or cost-effectiveness evaluation),
 - **cost-benefit evaluation** – verifies the programme in terms of costs. It measures both the programme costs and the results (benefits) in monetary terms. This means that the results or benefits of the program must be translated into a money value,
 - **cost-effectiveness evaluation** – checks how the desired benefits can be achieved with the least amount of resources. Benefits are expressed only in terms of the impacts or outcomes themselves (they are not given a

money value). Interpretation of this type of analysis requires stakeholders to decide if the benefit received is worth the cost of the program, or if there are other less expensive programs that would have similar or more beneficial results,

- **impact** – carrying out this type of evaluation is aimed to verify the impact the programme had on the participants, the workplace itself, or other stakeholders of the project. **Impact evaluation** goes a little further than outcome. It not only measures outcomes, but also measures what changes occurred as a result of those outcomes (it is sometimes referred to long-term outcomes).
- **relevance** refers to the extent to which an activity is suited to an organizational/ workplace policy, including changes over time.

The further part of this subchapter focuses mostly on characteristic of outcome and impact evaluation. Nonetheless, since according to the GPOW literature review of workplace programmes aimed at promotion of physical activity, healthy diet or prevention of overweight/ obesity among employees there is a complete lack of assessing the cost effectiveness and cost benefit of such interventions (Evaluation of Policies and Best Practices, 2008), thus it is worth mentioning a bit more about these kinds of evaluation. Assessing the effects of these types of workplace programmes on economic indicators such as absenteeism, sick leave, turnover and productivity is crucial especially in terms of obtaining management support and ensure continuation of interventions. Thereafter, it has to be emphasised that there is empirical evidence of such positive cost outcomes for workplaces (Williams et al., 2007; Pelletier, 2001).

Often it is difficult to anticipate all the costs and benefits associated with an intervention. For example it can be very hard (mostly due to a whole array of determining factors and difficulties in noticing them) to calculate how the programme's realisation influenced a decrease in employees' presenteeism. Nonetheless, it can be possible to assess in long-term evaluation whether (and if yes to what degree) the programme resulted in positive changes in those issues that typically are the subject of enterprise statistics, such as a decrease in absenteeism due to diseases for which an excess weight, lack of physical activity or unhealthy diet are common risk factors or a drop in accident rates among

employees working in occupations in which obesity/ overweight are accident risk factors.

4.5.2 Basic roles of planning outcome and impact evaluation

As mentioned, the next part of this subchapter will be devoted mostly to outcome and impact evaluation. Nevertheless, general roles of planning and implementing evaluation that are described here refer also to its other types.

Evaluation ought to be prepared at the stage of development of a workplace health promotion/ prevention plan. As a result of well planned evaluation, answers for the following crucial questions should be found:

- What is evaluated? (indicators)
- Why it is evaluated? (fields of making use of evaluation results, their receivers)
- How it will be carried out? (tools/ methods)
- Who evaluates? (evaluators, their roles)
- Who is a subject of evaluation? (its participants)
- When evaluation is carried out? (its timeline)
- How much does it cost? (finances)

What is evaluated? (indicators)

As far as outcome evaluation is concerned according to analysis carried out within a framework of GPOW Project (Evaluation of Policies and Best Practices, 2008) workplace health promotion interventions targeting obesity at the workplace usually aim at changing nutritional habits, physical activity habits or changing organisational/environmental factors in an enterprise (i.e. identification and elimination of obesogenic factors). Nonetheless, such programmes can also have other objectives, such as an increase in employees' interest, knowledge or motivation to have healthy diet/ undertake physical activity, as well as achievement of defined health results (i.e. body weight losses, a decrease in cholesterol or triglyceride blood levels, better well-being among people with hypertension, diabetes or osteoporosis) (Puchalski & Korzeniowska, 1999).

Depending on time when changes/ effects arise after intervention implementation, the following kinds of outcomes can be observed (WHO, 2006):

- short-term outcomes, such as increased knowledge, awareness, motivation;
- intermediate outcomes, such as change in behaviour;
- long-term outcomes, such as a change in health of the target group or worksite economic indicators.

Whereas as far as impact evaluation is concerned, it assesses changes that took place due to implementation of a programme which are beyond set objectives (broader effects). As mentioned above, it is sometimes referred to long-term outcomes. According to analysis of workplace interventions aimed at prevention of overweight/ obesity and promotion of physical activities/ healthy diet carried out within a framework of GPOW project one of identified limitations is evaluating intervention effects over short periods of time (between baseline and post-intervention follow-up) without including an extended post-intervention follow up (Evaluation of Policies and Best Practices, 2008). Whereas, as Sorensen (1998) suggests, this could result in a '*mismatch between the research timeline and the timeline of change*' and thus, could underestimate the impact of the intervention. So what should impact evaluation pertain to? For example if an objective of a programme is aimed at improvements in an employees' selected health behaviour, impact evaluation can be i.e. devoted to verification of changes in target group's health effects, company's selected economic indicators (i.e. absenteeism, occupational accidents) or its external groups' opinions on its public image, customer satisfaction.

At the planning stage of programme preparation, it is not enough to choose a field of evaluation. Evaluators also have to set desired programme's objectives. While setting them, evaluators ought to bear in mind that they should be (Puchalski, 1999):

- formulated in a **realistic** way, that means they should have at least 50% chance of coming true;
- **measurable** – it means that they ought to precisely and clearly show the results both in the terms of time (when the results will occur) and in terms of quantity/quality so that upon completing the project we can definitely say whether or not they were achieved;

- **defined** – described in such a way that enable to precisely see the final effect in people's imagination;
- **understandable and acceptable** - described in such a way that is easy to accept and clear to programme's coordinators, sponsors, implementing team, target group and evaluators.

An example of an objective meeting such criteria: 30% increase in office staff who exercises twice a week through a one-year intervention.

Why it is so vital for objectives to meet all these criteria? Firstly, they work in programme evaluation as variables that help to measure changes and facilitate the understanding of where a programme is, where it is going and how far it is from its final desired change. Secondly, since they precisely show what is desired due to the intervention implementation they have motivational aspect for various stakeholders to engage in a programme. Nonetheless, literature review of workplace programmes carried out within a framework of GPOW project showed that unfortunately in a number of them objectives are not defined in a described way. One of common mistakes is formulating them in a non-measurable manner. Whereas, generalised statements of changing attitudes, knowledge or behaviours of the target group does not allow for valid assessment of results (Evaluation of Policies and Best Practices, 2008).

Why it is evaluated? (Fields of making use of evaluation results, their receivers)

Obviously, the subject of evaluation also depends on identified groups/ stakeholders interested in its results as well as their needs in this field. Evaluators have to be aware that not only members of a team responsible for workplace health promotion/ prevention programme implementation are recipients of such information. The effects of the evaluation are of interest to the company (the programme participants, managers who often have financial contribution to the intervention as well as PR specialists willing to make use of the programme implementation in enterprise's marketing) as well as others outside the company (i.e. sponsors, institutions controlling health and safety in the worksite or other companies willing to engage in health promotion of their employees).

How it will be carried out? (Tools/ methods)

At the stage of planning of evaluation methods of verification of objectives or indicators for impact evaluation have to be thought thoroughly. Evaluators have to make a decision on types of methods they are going to use (The Health Communication Unit, 2005):

- quantitative methods (i.e. Internet, mail, telephone or face to face surveys, service utilization – such as percentage of employees attending diet counselling or aerobic classes, direct measures of behaviours/ health indicators – such as improvements in BMI),
- qualitative methods (i.e. focus groups, in-depth interview, open-ended survey questions, Internet forum/ discussion groups)
- or maybe a mixed-method approach.

While choosing a method the following issues should be taken into consideration: available human, financial and time resources, specificity of information that is desired (i.e. a touchy subject), openness/ willingness for cooperation of potential sources of information as well as advantages and disadvantages of possible methods/ tools (see table 1).

Table 1: Exemplary strengths and limitations of commonly used qualitative and quantitative methods (The Health Communication Unit, 2005; Westat, 2002):

Methods	Strengths	Limitations
Focus groups	<ul style="list-style-type: none"> • Provides in-depth information • Can be inexpensive to implement 	<ul style="list-style-type: none"> • Participants influence each other • Subjective • Potential for facilitator bias • Can be difficult to analyse • Results are not quantifiable to a population
In-depth interviews	<ul style="list-style-type: none"> • Usually yield richest data, details, new insights • Provides a confidential environment • Eliminates peer influence • Opportunity for interviewer to explore unexpected issues • Provides more detailed 	<ul style="list-style-type: none"> • More expensive to implement and analyse than focus groups • Time-consuming • Potential for interviewer bias • Possible interviewee tendency/ desire to please interviewer

Methods	Strengths	Limitations
	information than focus groups	<ul style="list-style-type: none"> • Can be difficult to analyse (i.e. due to volume of information) • Results are usually not quantifiable to a population
Open-ended survey questions	<ul style="list-style-type: none"> • Add depth to quantitative data • Generalisable to population 	<ul style="list-style-type: none"> • Time-consuming to analyse properly • Add considerable time to the survey • Not flexible
Surveys	<ul style="list-style-type: none"> • Results are generalisable to an entire population • Standardised, structured questionnaire minimises interviewer bias • Tremendous volume of information collected in short period of time (can cover a wide range of topics) 	<ul style="list-style-type: none"> • Not always provide comprehensive understanding of respondent's perspective • Require some statistical knowledge and other specialised skills to process and interpret results • Self report may lead to biased reporting
Observations	<ul style="list-style-type: none"> • Provide direct information about behaviour of individuals and groups • Permit evaluator to enter into and understand situation/context • Provide good opportunities for identifying unanticipated impact 	<ul style="list-style-type: none"> • Time-consuming • Need well-qualified, trained observers • May affect behaviour of participants • Selective perception of observer may distort data • Behaviour or set of behaviours observed may be atypical
Analysis of documentation	<ul style="list-style-type: none"> • Documentation is available in a company • Inexpensive • Grounded in a setting and language in which it occurs (namely a company) • Provide information on historical trends or sequences • Provide opportunity for study of trends over time 	<ul style="list-style-type: none"> • May be incomplete • Locating suitable documents may pose challenges • Analysis may be time-consuming and access may be difficult

While planning methods of verification of programme's end results one should consider evaluation precision/ accuracy. This in turn is one of the basic conditions of evaluation acceptability by its participants. For example, from an objective point of view, the best way of carrying out evaluation would be to make use of quantitative methods of gathering only objective data concerning changes happening under the influence of a workplace intervention. This might be for instance assessment of employees' BMI changes by a qualified appointed person in a programme aimed at prevention of obesity or assessment of blood cholesterol levels in a programme with dietary modifications. Taking such an approach of a high level of seriousness/ exactness in looking for an evidence of programme's success is objectively very beneficial. It gives an advantage of gathering only objective, often precise data concerning changes taking place under the influence of a programme (obviously with an assumption of controlling an influence of other than programme potential factors). Nevertheless, in such a case there is a question whether it is possible or acceptable to verify employees with such a high level of accuracy - in other words: to make them a subject of a high level of surveillance system. Isn't there too much pressure? Firstly, it seems that such kind of evaluation may work only in companies where an issue of an excess body weight is not a sensitive or embarrassing issue for employees. Secondly, there is a chance of this kind of evaluation success in programmes where enterprise management gives employees something that is tangible, often desired (such as i.e. an access to medical services, pharmacotherapy stimulating slimming, spa, sports facilities) and wants to exactly know what is happening due to these interventions. Regardless the reason of this kind of evaluation implementation encouraging employees to accept such a way of evaluation requires creation of conducive conditions namely atmosphere of confidence around the programme. How this can be done? Firstly, programme attendees have to be made aware before its implementation that entering the programme gives them an advantage of access to all these facilities but is also connected with precise evaluation. Secondly, participatory approach to evaluation should be undertaken. Thirdly, programme organisers in cooperation with management have to assure employees that enrolling the programme and in consequence being a subject of evaluation regardless its final effects won't result

in any repercussions – in other words programme participants have to know that there is no something like a bad result.

The other example of verification of programme's end results – this time less precise but most probably in some cases more acceptable by a target group is evaluation based on gathering subjective data. This might be for example evaluation based on participants' self-assessment of changes that happen under the influence of workplace interventions (i.e. in a programme aimed at obesity prevention – self-assessment of body weight changes, or in a programme popularising physical activity – changes of frequency of undertaking such a health behaviour). The other example (especially recommended by authors of GPOW literature review of programmes addressing an issue of obesity/overweight i.e. on the basis of Aldana, *et al.*, 2006, Togami, 2008) (Evaluation of Policies and Best Practices, 2008) is evaluation based on allowing employees to verify changes by self-applied methods (i.e. using pedometers to monitor physical activity progress or dietary cards to measure food intake). This kind of measurement is within the theoretical framework of empowerment and self-esteem enhancement, a method of putting people in control of their health and health choices. These issues have been emphasised as crucial for sustaining change in workplace health promotion interventions. Such an approach to evaluation – namely non-direct ways of checking changes - is highly advisable especially in companies where changes of body mass, an excess body weight are personal, embarrassing issues for employees. Nevertheless, evaluators deciding upon evaluation based on employees' self-assessment or self-applied methods have to be aware of its major disadvantage, namely data might be biased. It is due to the fact that a certain part of society has a distorted, deformed picture of its own body. For example, according to a survey carried out by the Polish Central Statistical Office (2006) on more than 35 thousand of Polish adults (15 years or older) 15% of a sample (almost one in seven respondents) have made an attempt to change their dietary habits for a three-year period before the survey. While asked for motivation of such a change, one in seven respondents changing their dietary habits pointed to overweight (this was a third reason after diseases and a willingness to improve a life style). What is surprising, an excess body weight was mostly pointed by people who had not objective reasons for making such changes since according to objective criteria (namely BMI) had not enough weight in relation to their

height (they were underweight). Only 6% of people having an excess weight made such dietary improvements due to overweight, obesity.

Who evaluates? (evaluators, their roles)

Usually programme's evaluation is carried out by members of a health promotion/ prevention team. Of course such a group should also consist of representatives of programme's addressees, namely employees (participatory approach to evaluation). Obviously there is one major disadvantage when people personally engaged in implementation of planned interventions (programme's organisers) are also responsible for evaluation – they can perceive and in consequence assess a programme partially. In other words, there is a risk that they may want to prove programme success by all means. After selecting evaluators, it is necessary to share responsibilities among them. Moreover, it is crucial for them to have specific skills (i.e. in a field of carrying out a questionnaire-based interview, performing observations, or being a facilitator in a focus group discussion), which in some cases may require their training.

Who is a subject of evaluation? (its participants)

Obviously, very important part of planning of evaluation is specifying its participants. Evaluators have to consider if they intend to engage only programmes' attendees or also other groups (i.e. while they carry out evaluation to check programme's impact on customers' satisfaction). They are also responsible for specifying for every selected evaluation method whether it will be used among all programmes' attendees or only their representatives, if yes – how numerous, should it be a sample consisted of people who come forward (self-selected, sample volunteered) or a random sample.

When evaluation is carried out? (its timeline)

The next step is to precisely plan timeline/ schedule of verification of changes that will come up in an enterprise due to a health promotion/ prevention intervention. A basic role of outcome/ impact evaluation is data collecting in at least two points in time: before an innovation is first introduced, and after its implementation for a sizable period of time. Why should evaluators take such an approach? It is due to the fact that such

documentation of status quo in a company (before programme's implementation) gives them an opportunity to refer to this data after its termination and compare it with end-results – in others words check what was achieved. What is obvious, changes can or even ought to be also checked during programme's implementation to get to know if they move closer to a planned result.

A key question asked by programme's organisers while planning timeline of evaluation of defined outcomes and impacts is when should they expect desired changes and as result when after implementation of an intervention is the best time to carry out evaluation (post-intervention follow-up). In one of manuals devoted to evaluation of workplace health promotion programmes its authors although emphasising that there is no 'proven' timeline for change, give some guidelines based on practical experience of experts in the field (The Health Communication Unit, 2005) - see table 2.

Table 2: Approximate time of coming up potential results of a workplace programme (The Health Communication Unit, 2005)

Approximate time [years]	Potential results
1	<ul style="list-style-type: none"> • Awareness • Participation • Morale
2	<ul style="list-style-type: none"> • Behaviour change • Commitment • Absenteeism
3	<ul style="list-style-type: none"> • Risk factor reduction
4	<ul style="list-style-type: none"> • Organizational changes in culture of the workplace
8++	<ul style="list-style-type: none"> • Reduced incidence of chronic diseases related to the changes undertaken

How much does it cost? (finances)

While planning evaluation of end-results of a worksite programme evaluators shouldn't forget about its budget. They have to assess necessary expenses and point out firm sources of financing. As far as expenses are concerned, WHO experts recommend that for the whole evaluation (so apart from evaluation of end-results also formative evaluation and monitoring) roughly 5 – 10% of programme's full costs ought to be reserved (Branka

et al., 2007). Nevertheless, this shouldn't be regarded as expenditure. This is investment – the bigger the budget is reserved, the more extensive, detailed evaluation can be carried out and the most valid data can be gathered.

4.5.3 Implementation of outcome and impact evaluation

Having prepared a precise plan of evaluation, its realisation can be started. Implementation can be divided into the following phases (Westa, 2002):

- data collection,
- data analysis,
- reporting,
- dissemination.

Data collection

While gathering the data both technical and political issues need to be addressed. Taking into consideration political issues is extremely important if evaluators don't want to scare evaluation participants. Thereafter, they have to bear in mind to explain them its aim (so why it is carried out and where data gathered on such basis will be used) as well as ensure them that any personal repercussions will result from information presented. What is more, they should consider the sensitivities of the respondents. It is because, they have to be aware that weight, changes in body mass, effectiveness of activities undertaken to lose weight can be sensitive, embarrassing, very personal issues. If evaluators face such a problem, they have to ensure evaluation participants that it does not aim at their verification but only assessment of a programme. They have to be aware that if they make people a subject of evaluation (not a programme), they may not receive honest information and as a result evaluation won't be reliable. In this situation ensuring participants of evaluation anonymity as well as collective (not unit) data analysis seems to be one of possible solutions.

As far as technical issues are concerned, evaluation should be conducted according to its schedule set up at the planning stage. One of crucial issues for evaluators is to try to gather data from as many members of a sample as possible. In this way they can improve

validity of their findings. Thus, if they have such a problem, they should try to reach potential respondents repeatedly.

Data analysis

The easiest and thus the most often applied statistical methods in data processing are analysis of proportion (percentage) and frequency of an issue. What is obvious, sometimes more advanced statistical methods are required (i.e. statistically significant differences).

Here it is also worth pointing out as a cautionary advice for evaluators to the most common mistakes made while data analysis identified in a review of literature workplace programmes addressing an issue of obesity/ overweight that was carried out within a framework of GPOW project. Firstly, evaluations mostly report the overall impact/ outcome of the intervention, without conducting further analyses to determine whether this was due to small changes made by a large number of participants or large changes observed among fewer individuals. Secondly, most studies use the individuals as the unit of analysis when analysing the results. In consequence, intervention effect is evaluated in terms of participant influence rather than the entire workforce (Evaluation of Policies and Best Practices, 2008).

Reporting

After the whole evaluation a report ought to be compiled (while preparing it evaluators should remember of various groups interested in evaluation results). It is crucial for the report to include not only description of programme's outcome/ impact (and methods/ tools of gathering the data), but also conclusions stemming from their interpretation (such as programme's strengths and weaknesses, opportunities and threats for the future) as well as recommendations based on outcomes/ impacts and their interpretation (i.e. connected with directions of future activities, programme's continuation or necessary changes).

4.6. Using the outputs of Evaluation

Preparation for this phase of evaluation implementation ought to be started at the stage of development of a plan of a health promotion/prevention programme, which among others should result in compilation of a list of evaluation audiences and their needs for information. This is a basis for evaluators to conduct the process of evaluation dissemination.

In the end evaluation (any type of evaluation not only the two types presented above namely process evaluation and impact evaluation) is judged by the utility it has for those who asked and funded it. In this sense two major uses have been defined for evaluation and they are the direct and the conceptual utilization (Rossi, 2004).

The direct (instrumental) utilization is the first type of utilization which enables decision makers to document and support their own decisions. As a particular use for the process evaluation we have to mention that this particular type of evaluation is best put at work when using it as a feedback mechanism for program managers in a process of continuous fine tuning of the activities / methods / approaches of the project. Nevertheless the same process evaluation could be used as a control mechanism by the employers' representatives, based on the assumption that they are getting from the evaluator or the program manager this data.

The second type of use is the conceptual utilization which refers to the capacity of the evaluation results to influence thinking about issues in a general way. This type is particularly relevant for the impact (and outcome) evaluation, and moreover in the case of WHP programs, due to the character of relative newness of this type of programs for employers; obviously this type of evaluation serves very well the purposes of promoters of WHP programs which are using its results for building the case for WHP programs, by showing the employers:

- what type of direct benefits (health status of the workforce) are to be obtained after implementing WHP programs
- what type of indirect benefits it could generate such as improved image of the employer as Health-concerned company (this is particularly important for its own workforce in trying to make them committed to the company, for the clients in convincing to do business with health-concerned companies which adds to their own

image, for the employment market in attracting new valuable employees, for the community in establishing the employer as a partner for joint CSR initiatives etc).

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ANNEX I: INTERNATIONAL CLASSIFICATION OF OCCUPATIONS

International Standard Classification of Occupations (ISCO-2008)

1 Managers

- 11 Chief executives, senior officials and legislators
- 12 Administrative and commercial managers
- 13 Production and specialized services managers
- 14 Hospitality, retail and other services managers

2 Professionals

- 21 Science and engineering professionals
- 22 Health professionals
- 23 Teaching professionals
- 24 Business and administration professionals
- 25 Information and communications technology professionals
- 26 Legal, social and cultural professionals

3 Technicians and associate professionals

- 31 Science and engineering associate professionals
- 32 Health associate professionals
- 33 Business and administration associate professionals
- 34 Legal, social, cultural and related associate professionals
- 35 Information and communications technicians

4 Clerical support workers

- 41 General and keyboard clerks
- 42 Customer services clerks
- 43 Numerical and material recording clerks
- 44 Other clerical support workers

- 5 **Service and sales workers**
- 51 Personal service workers
- 52 Sales workers
- 53 Personal care workers
- 54 Protective services workers

- 6 **Skilled agricultural, forestry and fishery workers**
- 61 Market-oriented skilled agricultural workers
- 62 Market-oriented skilled forestry, fishing and hunting workers
- 63 Subsistence farmers, fishers, hunters and gatherers

- 7 **Craft and related trades workers**
- 71 Building and related trades workers, excluding electricians
- 72 Metal, machinery and related trades workers
- 73 Handicraft and printing workers
- 74 Electrical and electronic trades workers
- 75 Food processing, wood working, garment and other craft and related trades workers

- 8 **Plant and machine operators, and assemblers**
- 81 Stationary plant and machine operators
- 82 Assemblers
- 83 Drivers and mobile plant operators

- 9 **Elementary occupations**
- 91 Cleaners and helpers
- 92 Agricultural, forestry and fishery labourers
- 93 Labourers in mining, construction, manufacturing and transport
- 94 Food preparation assistants
- 95 Street and related sales and service workers
- 96 Refuse workers and other elementary workers

- 0 **Armed forces occupations**
- 01 Commissioned armed forces officers
- 02 Non-commissioned armed forces officers
- 03 Armed forces occupations, other ranks

ANNEX II: NEEDS ASSESSMENT TOOLS

Tool listing

Workplace Physical Activity Framework

BWell Employee Interest Survey

Workplace Wellness Survey

Connex Health Risk and Productivity Assessment (CHRP)

Employee Engagement Survey

Organizational Health Survey

Organizational & Individual Health

Questionnaire for Self-Assessment

Stress Map

Health at Work Needs Assessment Questionnaire

Workplace Overview Tool

Workplace Health Needs and Risks Survey

Personal and Organizational Quality Assessment (POQA)

Work Positive Risk Assessment Questionnaire

Wellness Checkpoint

Heart Check

Heart Works Survey

Workplace Health Promotion Quality Assessment Questionnaire

NQI Employee Healthy Workplace Survey

Improving Your Workplace Employee Survey

OHA Healthy Hospital Employee Survey (HHES)

SF-36v.2

Employee Health Survey

HEALTH MONITOR

Employee Feedback System (EFS)

TRALE Explorer (Online) & TRALE Backpack (Paper)

Organizational Health Audit

Personal Wellness Profile

STORM Index (Strategic Organizational Management Index)

Workplace Physical Activity Framework (WPAF), The Alberta Centre for Active Living

The Workplace Physical Activity Framework (WPAF) is for workplaces to assess their ability to promote and support physical activity to workplace employees. When used over time, the WPAF can show where resources can be best used for workplace physical activity promotion in order to create a cycle of continuous improvement.

Tool Construction: 45 questions.

Sections include:

Part 1. Groundwork: Management and Employee Commitment; Environment and Needs Assessment.

Part 2. Construction: The Individual Level: Knowledge, Attitude, and Skills; The Social Level: Enhancing Relationships; The Organizational Level: Leadership, Capacity, Will, and Infrastructure; The Community Level: Assets and Partnerships; The Policy Level: Current Physical Activity Policies and Drafting New Policies.

Part 3. Detailing: Program Administration: Safety and Risk Management.

Contact Information Education Coordinator The Alberta Centre for Active Living 11759 Groat Road Edmonton Alberta T5M 3K6 www.centre4activeliving.ca. Additional Resources Development of an Ecological Assessment Tool for a Workplace Physical Activity Program Standard. WPAF Program Standard (which contains the tool itself)

BWell Employee Interest Survey, Buffett Taylor & Associates Ltd Workplace

This tool is used to gain insight into demographics and health interest areas of a particular employee group. It can also gauge barriers to participation and the varying employee perceptions of an organization's culture.

Tool Construction 1 section on over 30 topics of interest; 1 section on organizational culture; Logistics questions on time and program preferences.

Contact Information Janet Young Buffett Taylor & Associates Ltd. 605 Brock Street North, Suite 200 Whitby, ON L1N 8R2 www.buffetttaylor.com

Wellness Survey, Centre for Families, Work and Well-Being

Description The Workplace Wellness Survey is designed to provide individuals and organizations with insight into their well-being and to facilitate and support a change process toward healthier individuals and organization.

Tool Construction 54 questions. Topics covered include: organizational values; questions about your job; health and safety concerns; work-life balance; personal life (care giving, nutrition, smoking, alcohol consumption, physical activity, sleep); and general information.

Contact Information Peter Hausdorf, Ph.D. Department of Psychology University of Guelph Guelph, Ontario N1G 2W1 phausdor@uoguelph.ca, Phone: 519-824-4120 ext. 53976 Centre for Families, Work and Well-Being <http://www.worklifecanada.ca/>

Connex Health Risk and Productivity Assessment (CHRPAC®), Connex Health Consulting

Description The tool assesses individual and organizational health needs, interests, and preferences; identifies program priorities; and it provides a baseline for future measurement.

Tool Construction

Section 1: About You - 5 questions (age, sex, type of work, rate your health, barriers to improving health)

Section 2: About Your Lifestyle Habits – 40 questions (lifestyle habits, stage of change and interest in programs for BMI, nutrition, activity, sleep, work and home stress and coping, what could employer do to decrease stress social, shift work, smoking, alcohol)

Section 3: About Your Health – 46 questions (family history of diseases, current diagnosis of diseases, diseases requiring medication, self care practices for annual medical, dental, know your cholesterol and blood pressure, self examinations, risk factors for asthma, COPD, osteoporosis, and impact of disease on productivity and personal activity levels)

Section 4: About Your Work and Home Life – 12 questions (marital status, dependent children, Work interference with Family, Family interference with Work, impact of parenting/care giving on work and personal health)

Section 5: Mental Health – 5 questions (family history, symptoms, risk factors for anxiety/bipolar)

Section 6: Health in Your Workplace – 10 questions (air quality, business culture, job satisfaction, recommend workplace)

Section 7: About Your Interest in Workplace Health Programs – 11 questions (interest level, specific program interest, delivery format preference, time preference, barriers, willingness to volunteer, willingness to pay a fee, manager support for employee participation)

Contact Information Denise Balch, President Connex Health Consulting 3228 South Service Road, Suite 104 Burlington, ON, L7N 3H8 www.connexhc.com

Employee Engagement Survey, Entec Corporation

Description The Employee Engagement Survey is used to improve employees' working experiences and thereby increase their satisfaction, motivation, commitment and performance.

Tool Construction 5 sections, which include the following topics: My Department; My Manager; Corporate Practices and Policies; Mission and Values; and Personal Thoughts and Feelings. There are also 3 open-ended questions.

Contact Information Michael Koscec President Entec Corporation 283 Danforth Avenue Suite 318 Toronto, ON M4K 1N2 Canada Toll Free: 1-888-858-8174, www.EmployeeOnlineSurvey.com

Organizational Health Survey, Entec Corporation

Description The Organizational Health Survey is used to improve employees' working experiencing and thereby increasing their satisfaction, motivation, commitment and performance.

Tool Construction 4 sections, which include the following topics: My Department; My Manager; Corporate Practices and Policies; Mission and Values. There are also 3 open-ended questions.

Contact Information Michael Koscec President Entec Corporation 283 Danforth Avenue Suite 318 Toronto, ON M4K 1N2 Canada Toll free: 1-888-858-8174 www.EmployeeOnlineSurvey.com

Organizational & Individual Health Survey, Entec Corporation

Description The Organizational & Individual Health Survey is used to improve employees' working experiencing and thereby increasing their satisfaction, motivation, commitment and performance. In order to meet this purpose, the tool uses the following methods to obtain specific data from employees:

- Establishes a benchmark of best practices in an organization
- Measures employee engagement
- Measures leadership capability

- Identifies the nature of workplace practices at the department level
- Identifies the nature of corporate practices that impact all employees equally
- Measures mission and organizational values
- Measures the emotional well-being of employees

Tool Construction 5 sections, which include the following topics: My Department; My Manager; Corporate Practices and Policies; Mission and Values; and Personal Thoughts and Feelings. There are also 3 open-ended questions.

Contact Information Michael Koscec President Entec Corporation 283 Danforth Avenue, Suite 318 Toronto, ON M4K 1N2 Canada Toll free: 1-888-858-8174 www.EmployeeOnlineSurvey.com

Questionnaire for Self-Assessment, European Network for Workplace Health Promotion (ENWHP) ENWHP Secretariat

The tool should be used to analyze the current status of workplace health promotion activities within an enterprise/organization with a view to start/improve workplace health promotion activities.

Tool Construction (27 questions). Sections include: Workplace Health Promotion and Corporate Policy; Enablers; Human Resources and Work Organization; Workplace Health Promotion Planning; Social Responsibilities; and Workplace Health Promotion Implementation.

Contact Information: Dr. Reinhold Sochert, European Network for Workplace Health Promotion (ENWHP) ENWHP Secretariat European Information Center Kronprinzenstr. 6D-45128 Essen www.enwhp.org

Additional Resources EFQM: Introducing Excellence Questionnaire for Self-Assessment (tool itself) [Access online tool at www.enwhp.org] To access the tool from the ENWHP

website click on “WHP in your Company! Questionnaire for Self Assessment. Put it to the test!”

StressMap®, 134 Essi Systems Inc.

Description The StressMap® is designed to assess one’s respective stress strengths and stress vulnerabilities by looking at 21 stress factors, or scales. In other words, it is to gain a personal snapshot or profile of one’s person at a particular point in time. Team Map® and Program Design Tool turn the individual StressMap® into a needs assessment.

Tool Construction 4 parts, with 21 stress points covered.

Part 1: Your Environment/Pressures and Satisfactions;

Part 2: Coping Responses/Assets and Liabilities;

Part 3: Inner World/Thoughts and Feelings;

Part 4: Signals of Distress.

Contact Information Martha Evans staff @essisystems.com Essi Systems Inc. 70 Otis Street San Francisco, CA 94103 USA www.essisystems.com

Health at Work Needs Assessment Questionnaire, Haldimand-Norfolk Health Unit

Description With a comprehensive approach, it is intended to measure the workplace health, personal health, and organizational needs of a workplace.

Tool Construction (55 questions). Sections include: General Health; Nutrition; Physical Activity; Smoking and Alcohol; Social Work Environment; My Health and My Job; Physical Work Environment; Employee Interest; and Your Profile. There is also a 30 question version of only mandatory questions available.

Contact Information Giovanna Ferrara Workplace Health Promoter Haldimand-Norfolk Health Unit P. O. Box 247 12 Gilbertson Drive Simcoe, Ontario N3Y 4L1 Phone: 519 426-6170 Fax: 519 426 9974 www.haldimand-norfolk.org giovanna.ferrara@haldimand-norfolk.org

Workplace Overview Tool, City of Hamilton, Public Health & Community Services Department

Description The Workplace Overview Tool is designed to help workplaces identify and keep track of existing supports and policies at their workplace. This information can be used to plan activities, programs and policies.

Tool Construction (53 questions). Sections include: Background Information; Psychosocial Environment; Physical Environment; and Health Practices (which includes Smoke-Free Living, Food Choices, Physical Activity, Alcohol and Other Drugs, Immunizations, and Other Health Topics).

Contact Information Lisa Beaudoin Workplace Health Promotion Specialist City of Hamilton Public Health & Community Services Department 71 Main St. West Hamilton, ON L8P 4Y5 Phone: 905-546-2424 ext. 3065 Fax: 905-546-3658 E-Mail: lbeaudoi@hamilton.ca Website: www.hamilton.ca/phcs/Healthy-Workplace/default.asp

Workplace Health Needs and Risks Survey, Health Canada

The Workplace Health Needs and Risks Survey, was developed to assist organizations with assessing the health needs and risks of their workforce. The Workplace Health Needs and Risks Survey is part of Health Canada's Workplace Health System, a guide to comprehensive workplace health promotion.

Tool Construction (47 questions). Sections include: Rating Your Own Health; Feelings About My Health and My Job; Shift Work; Physical Activity; Worry, Nerves or Stress; Sleep; Seeking Help; Nutrition; Someone to count on; Smoking, Alcohol, Medication and Other Drugs; Safety; Your Background; and How Your Employer Can Help.

Contact Information Developer: Health Canada Policy & Workplace Health Strategies Bureau Workplace Health and Public Safety Programme 171 Slater Street, 9th Floor P.L.3709D Ottawa, Ontario, K1A 0K9 General inquiries: 613-954-8857 http://www.hc-sc.gc.ca/ewh-semt/occup-travail/worktravail/index_e.html Distributor: Health Canada (see above) and Silico Global Information Systems Inc. 1445 Woodroffe Avenue Ottawa, Ontario, K2G 1W1 Phone: 613-727-0465, Fax: 613-727-5003 www.silicoglobal.com silico@silicoglobal.com

Personal and Organizational Quality Assessment (POQA), HeartMath LLC

The tool is designed to measure stress indicators, positive and negative effects at the individual level, and organizational culture/climate at the group level.

Tool Construction (85 questions). 4 sections, which include: General Information; A list of words describing feelings; A list of words describing the way people think about themselves at times; and Questions about feelings and experiences over the last month.

Contact Information Rollin McCraty HeartMath LLC 14700 West Park Avenue Boulder Creek, California 95006 USA www.heartmath.com

Work Positive Risk Assessment, NHS Health Scotland

Description The Work Positive Risk Assessment Questionnaire is a self-completion questionnaire for employees. It is designed for use within small and medium sized individual businesses, to provide managers with a measure of employee stress. The measure provides a score on a range of salient structural and work organizational influences with potential to contribute to workplace stress. The questions are designed to address aspects such as ‘job design’ and ‘workload’. The tool is intended to be used as “stage two” within the greater Work Positive package, which was designed to operate as a voluntary scheme for small and medium sized enterprises to assist managers in assessing and controlling risks associated with work related stress.

Tool Construction 1 open-ended question and 67 statements (agree/disagree) that cover various aspects of organizational culture.

Contact Information NHS Health Scotland Woodburn House Canaan Lane, Edinburgh, EH10 4SG Scotland Phone: 0131 536 5500 Fax: 0131 536 5501 NHS Health Scotland is a new special health board bringing together the Public Health Institute of Scotland (PHIS) and the Health Education Board for Scotland (HEBS) workpositivefeedback@health.scot.nhs.uk <http://www.hebs.com/workpositive/> www.hebs.org, www.phis.org.uk <http://www.healthscotland.com/>

Wellness Checkpoint, InfoTech Inc.

Description Wellness Checkpoint helps simplify the process of identifying at-risk employees and provides organizations with the aggregate data to make better decisions on how to create a healthier work environment that leads to better health, wellness and performance of employees.

Tool Construction (See InfoTech's Sources Reference Summary for a detailed description of tool construction). This additional resource can be accessed through the online Resource Listing.

Contact Information InfoTech Inc. 485 Madison Street Winnipeg, Manitoba R3J 1J2 Canada Phone: 204-788-1500 Toll-free: 1-800-363-WELL Fax: 204-788-1600 sales@wellnesscheckpoint.com www.wellnesscheckpoint.com

Heart Check, New York State Department of Public Health, Healthy Heart Program

Description Heart Check is a 226-item inventory designed to measure such features in the worksite as organizational foundations, administrative supports, tobacco control, nutrition support, physical activity support, stress management, screening services, and company

demographics. Additional side studies used professional judgments and behavioral surveys. When applied during interventions, positive changes in organizational support levels can result.

Tool Construction 9 sections, which include the following topics: Preliminary Information; Organizational Demographics; Smoking; Nutrition; Physical Activity; Stress; Screening; Administrative Support; Organizational Foundations.

Contact Information Source: New York State Department of Public Health Healthy Heart Program Contact: Thomas Golaszewski (Developer of tool) Department of Health Sciences SUNY at Brockport 17D Hartwell Hall Brockport NY 14420

Heart Works Survey, Regional Niagara Public Health Department

To identify the health status of employees – what kind of health behaviors they have, their self-perceived health, their intent to change, and their relative job satisfaction.

Tool Construction (52 questions). Sections include: Food choices; BMI; Physical Activity; Smoking; Stress; Alcohol, Medication and Other Drugs; and questions specific to Data Analysis.

Contact Information Corinne Smith Public Health Nurse Regional Niagara Public Health Department 573 Glenridge Avenue St. Catharines, Ontario L2T 4C2 Canada www.regional.niagara.on.ca/government/health/default.aspx

Workplace Health Promotion Quality Assessment Questionnaire, The National Centre for Workplace Health Promotion, The Nofer Institute of Occupational Medicine, Lodz, Poland

Description The tool is aimed at general assessment of the quality of Workplace Health Promotion programmes. It also serves as a guideline and a marketing tool. It is a questionnaire consisting of 6 parts concerning the policy, structures, objectives, planning,

implementation and evaluation of Workplace Health Promotion in the company. In each part several crucial issues are tackled. The respondent/organization has to establish whether the criteria indicated in each part are met. It is process oriented, allows an insight into structures, management of the healthy workplaces projects, and covers all key areas in integrated health management in the organization.

Tool Construction (6 sections), which cover the following topics: Health Promotion Policy; Health Promotion Structures; Health Promotion Planning; Health Promotion Objectives; Health Promotion Implementation; Health Promotion Evaluation.

Contact Information: Elzbieta Korzeniowska, The National Centre for Workplace Health Promotion, The Nofer Institute of Occupational Medicine Ul. Sw. Teresy 8, 90-950 Lodz, Poland Phone: +48 42 63 14 686 Fax: +48 42 63 14 685
whpp@imp.lodz.pl <http://www.imp.lodz.pl/>

NQI Employee Healthy Workplace Survey, National Quality Institute

The NQI Employee Healthy Workplace Survey is an online (and/or paper-based) survey tool that organizations can use to reliably track employee perceptions and attitudes about their workplace and provide them with timely feedback on organizational strengths and opportunities for improvement. It was constructed with four major goals in mind.

- To be based on sound and empirically tested theories of employee satisfaction.
- To be designed in such a way as to balance the needs of scientific rigor (including high reliability and validity of the scales), with the practical aspects of being used in organizations.
- To be a generic measure that could be used with a wide variety of industries, across job levels and job functions.

- To capture a wide range of employee satisfaction facets and provide attitudinal scales to measure employee attitudes related to the practice of Healthy Workplace and Quality and in the workplace.

Tool Construction (8 sections with 5-10 questions each). Sections include: Physical Environment; Health Practices; Culture and Supportive Environment; Leadership; Planning; People Focus; Processes; and Other Questions.

Contact Information Adam Stoehr Director, Educational Services National Quality Institute 2275 Lake Shore Blvd. West, Suite 307 Toronto ON M8V 3Y3 Canada www.nqi.ca

Improving Your Workplace Employee Survey, NRC + Picker Canada

The tool is intended to help workplaces understand the important factors in a positive health workplace, to identify strengths and areas for improvement.

Tool Construction 33 Questions. Sections include: How do you rate your workplace?; How can your organization improve?; Quality of Care; Perspectives on Patient Care; Organizational Commitment and Career Plans; Overall Impressions; Safety, Training and Health; Specific Work Life Issues; and Information About You.

Contact Information Mary Fraser Account Director NRC + Picker Canada 7100 Woodbine Avenue Suite 411 Markham, Ontario L3R 5J2 Canada www.nrcpicker.com

OHA Healthy Hospital Employee Survey (©HHES), Ontario Hospital Association, in partnership with Workplace Health Research Unit, Brock University

The ©HHES addresses the following purposes:

- 1) Identify the key drivers of employee satisfaction and productivity in health care organizations
- 2) Identify gaps between the respondents' satisfaction with, and perceived importance of, key quality of work life factors

- 3) Clearly identify organization's greatest areas of strength - and pinpoint the greatest opportunities for improvement
- 4) Identify respondents' key health behaviors and risk, current health status and readiness to change
- 5) Compare the findings across departments and levels in participating organizations
- 6) Systematically evaluate comments and suggestions of respondents
- 7) Allows for the review and action on provincial/ national employee health/quality of work life issues
- 8) Benchmarking capabilities

Contact Information Andrea Parent, Wellness Consultant Organizational Health Management Services Ontario Hospital Association 200 Front Street, Suite 2800. Toronto, ON M5V 3L1 Phone: 416.205.1414, Fax: 416.205.1390 www.oha.com John Yardley, Director Workplace Health Research Unit Brock University, 43 Church St., Suite 401 St. Catharine's, Ontario L2R 7E1 Phone: (905) 641-7578 or 1-800-726-4082 Fax: (905) 641-7538 <http://www.whru.ca>

SF-36v.2, QualityMetric Incorporated

Description To measure the health and well being (quality of life) of individuals and populations for the purposes of measuring disease burden and treatment effectiveness, predicting risk, as well as to engage the consumer/patient/ employee meaningfully in his or her own health status measurement for compliance, wellness, and health promotion initiatives.

Tool Construction 36 Questions. Sections include 8 scales on: Physical Functioning; Role Physical; Bodily Pain; General Health; Vitality; Social Functioning; Role Emotional; Mental Health. There is also a Reported Health transition question. The above scales may be used to calculate the MCS (Mental Component Summary) and the PCS (Physical Component Summary).

Contact Information QualityMetric Incorporated 640 George Washington Hwy. Ste. 201
Lincoln, RI 02865 USA www.qualitymetric.com

Employee Health Survey, Simcoe Muskoka Health Unit

Description The Employee Health Survey was designed to determine the health needs, stages of change, and the type of programming desired by employees for a comprehensive workplace health program.

Tool Construction (59 questions). Sections include: general health; physical activity; nutrition; smoking; alcohol, medication and other drugs; sleep; stress; job stress and job satisfaction; physical environment; and environmental supports.

Contact Information Brenda Marshall Project Officer Simcoe Muskoka Health Unit 5
Pineridge Gate Gravenhurst, Ontario P1P 1Z3 TEL: (705) 684-9090 FAX: (705) 684-9959 www.simcoemuskokahealth.org

HEALTH MONITOR, Summex Health Management

The purpose of the HEALTH MONITOR™ is to help individuals identify the areas of their health that may be at risk and provide suggestions for improvement. Follow-up interventions that counsel individuals based on their HEALTH MONITOR™ results are also available. If taken during successive years, the HEALTH MONITOR™ can also provide a means for employers to measure the success of wellness programs.

Tool Construction (65 questions). Sections include: Medical History; Preventative Screening; Overall Health; Men's Health; Women's Health; Men and Women; Overall Health; Exercise; Tobacco Use; Nutrition Habits; Alcohol Use; Safety; Mental Health; Lifestyle Choices; Medical Care; Evaluation; and Clinical Information (for professional use only).

Contact Information Summex Health Management 7602 Woodland Drive Suite 100
Indianapolis, IN 46278 USA www.summex.com

Employee Feedback System (EFS), Workplace Health Research Unit, Brock University

Description: The ©EFS can address several purposes. Individual clients identify their own goals for the ©EFS project, but they generally are along the following lines:

- 1) Identify the key drivers of employee satisfaction and productivity in organizations
- 2) Identify gaps between the respondents' satisfaction with, and perceived importance of, key quality of work life factors
- 3) Clearly identify organization's greatest areas of strength -- and pinpoint the greatest opportunities for improvement in employee quality of work life
- 4) Compare the findings across departments and levels in their organization
- 5) Systematically evaluate comments and suggestions of respondents
- 6) Create action plans for organizational change
- 7) Evaluate progress in organizational quality of work life change programs.

Contact Information John Yardley, Director Workplace Health Research Unit, Brock University 43 Church Street, Suite 401 St. Catharine's, Ontario, L2R 7E1 Phone: (905) 641-7578 1-800-726-4082 Fax: (905) 641-7538 <http://www.whru.ca>

TRALE Explorer (Online) & TRALE Backpack (Paper), TRALE, Inc.

TRALE provides the first step tools (TRALE Backpack and TRALE Explorer) necessary to start health promotion and disease management programs. The TRALE Backpack is a portable stand-alone health risk assessment tool designed to offer fully integrated health risk assessments, individual wellness reports, and full aggregate/executive reports. TRALE Explorer is an online self-scored health risk appraisal with immediate feedback via a private and secure Web link. Health Coaching is also included with the TRALE Backpack (Paper).

Tool Construction (3 sections, 42 questions with multiple choice answers). The answers are on a weighted point scale and the dynamic results are characterized as “ideal”, “borderline”, or “at risk”.

Contact Information Dan O’Flaherty Vice President of Sales TRALE, Inc. 196 SE Spokane Street Suite # 107 Portland, Oregon 97202 USA www.trale.com

Organizational Health Audit, Tri Fit Inc.

Description The Organizational Health Audit was developed to assist organizations in developing strategic and targeted health promotion initiatives that meet organizational goals.

Tool Construction 4 sections, which cover the following topics: Physical Environment; Programs and Services; Policies and Procedures; and Corporate Culture.

Contact Information Tri Fit Inc. 1307 Devon Road Oakville, Ontario L6J 2L7 Canada www.trifit.com

Personal Wellness Profile, Well source, Inc.

Description The tool is designed to assess a workplace’s employee population and promote a healthy workplace.

Tool Construction 39-75 questions. Sections include: Health Information; Physical Activity; Eating Habits; Alcohol, Drugs and Smoking; Stress and Coping; Social Health; Safety; Medical Care; and Health View.

Contact Information Rod Birdsell Toronto Regional Business Development Manager Wellsource, Inc. 15431 SE 82nd Drive Clackamas, Oregon 97015 USA TEL: (800) 533-9355 www.wellsource.com

STORM Index (Strategic Organizational Management Index), Workplace Consultants Inc.

Description The STORM Index was initially intended to be a comprehensive cultural, organizational health assessment, but it has expanded to also become a productivity, performance and quality assessment. The results of the survey are intended to help workplaces assess their current organizational culture and to be able to work towards improving areas where organizational culture needs improvement.

Tool Construction 2 sections: Section I includes 10 core stimulus word response items, plus additional custom items. Section II utilizes traditional survey items related to demographics, job satisfaction, stress, health, worklife balance, product/service quality, productivity, employee recommendations. Section II is optional and customizable depending on needs of the client, averaging 60-70 questions.

Contact Information Michael Peterson President Workplace Consultants Inc. 114 Ridgewood Dr. Landenberg, PA 19350 USA www.stormindex.com

ANNEX III: LEGISLATIVE FRAMEWORK

Certain legislative measures can directly or indirectly affect the prevention of obesity at the workplace or can be used in counter obesity interventions in various occupational settings.

The **European Union Council Directive No 93/104/EC** of 23 November 1993 refers certain aspects of the organization of working time. This Directive applies to:

- (a) minimum periods of daily rest, weekly rest and annual leave, to breaks and maximum weekly working time; and
- (b) certain aspects of night work, shift work and patterns of work.

This specific Directive shall apply to all sectors of activity, both public and private.

Some relevant definitions to this Directive are mentioned below:

Working time means any period during which the worker is working, at the employer's disposal and carrying out his activity or duties, in accordance with national law and/or practice;

Rest period means any period which is not working time;

Night time means any period of not less than seven hours, as defined by national law; and which must include in any case the period between midnight and 5 am;

Night worker means:

- on the one hand, any worker, who, during night time, works at least three hours of his daily working time as a normal course; and
- on the other hand, any worker who is likely during night time to work a certain proportion of his annual working time, as defined at the choice of the Member State concerned: (i) by national legislation, following consultation with the two sides of industry; or (ii) by collective agreements or agreements concluded between the two sides of industry at national or regional level;

Shift work means any method of organizing work in shifts whereby workers succeed each other at the same work stations according to a certain pattern, including a rotating pattern, and which may be continuous or discontinuous, entailing the need for workers to work at different times over a given period of days or weeks;

Shift worker shall mean any worker whose work schedule is part of shift work.

Minimum rest periods according to the Directive should be as follows:

Daily rest

Member States shall take the measures necessary to ensure that every worker is entitled to a minimum daily rest period of 11 consecutive hours per 24-hour period.

Breaks

Member States shall take the measures necessary to ensure that, where the working day is longer than six hours, every worker is entitled to a rest break, the details of which, including duration and the terms of which it is granted, shall be laid down in collective agreements or agreements between the two sides of industry or, failing that, by national legislation.

As far as **night work shift** is concerned, Member States shall take the measures necessary to ensure that:

- normal hours of work for night workers do not exceed an average of eight hours in any 24-hour period;
- night workers whose work involves special hazards or heavy physical or mental strain do not work more than eight hours in any period of 24 hours during which they perform night work.

As far as pattern of work is concerned, Member States shall take the measures necessary to ensure that an employer who intends to organize work according to a certain pattern takes account of the general principle of adapting work to the worker, with a

view, in particular, to alleviating monotonous work and work at a predetermined work-rate, depending on the type of activity, and of safety and health requirements, especially as regards breaks during working time.

Due to the lack of broad legislation concerning meal breaks as well as the absence of consistency from country to country or even within countries, the **International Labour Office** adopted the twenty-sixth day of June of the year one thousand nine hundred and fifty-six, the following Recommendation, which may be cited as the **Welfare Facilities Recommendation, 1956 (No 102)**:

Certain principles and certain standards concerning the following welfare facilities for workers are defined as follows:

- (a) feeding facilities in or near the undertaking;
- (b) rest facilities in or near the undertaking and recreation facilities excluding holiday facilities; and
- (c) transportation facilities to and from work where ordinary public transport is inadequate or impracticable.

It is recommended that the aforementioned provisions should be applied as fully and as rapidly as national conditions allow, by voluntary, governmental or other appropriate action, and that each Member should report to the International Labour Office as requested by the Governing Body concerning the measures taken to give effect there to.

As far as feeding facilities are concerned the following are mentioned:

A. Canteens

- Canteens providing appropriate meals should be set up and operated in or near undertakings where this is desirable, having regard to the number of workers employed by the undertaking, the demand for and prospective use of the facilities, the non-availability of other appropriate facilities for obtaining meals and any other relevant conditions and circumstances.
- If canteens are provided by virtue of national laws or regulations, the competent authority should be empowered to require the setting up and operation of canteens in or near undertakings where more than a specified minimum number of workers

is employed or where this is desirable for any other reason determined by the competent authority.

- If canteens are the responsibility of work committees established by national laws or regulations, this responsibility should be exercised in undertakings where the setting up and operation of such canteens are desirable.
- If canteens are provided by virtue of collective agreement or in any other manner except as indicated in Paragraphs 5 and 6, the arrangements so arrived at should apply to undertakings where this is desirable for any reason as determined by agreement between the employers and workers concerned.
- The competent authority or some other appropriate body should make suitable arrangements to give information, advice and guidance to individual undertakings with respect to technical questions involved in the setting up and operation of canteens.

B. Buffets and Trolleys

- In undertakings where it is not practicable to set up canteens providing appropriate meals, and in other undertakings where such canteens already exist, buffets or trolleys should be provided, where necessary and practicable, for the sale to the workers of packed meals or snacks and tea, coffee, milk and other beverages. Trolleys should not, however, be introduced into workplaces in which dangerous or harmful processes make it undesirable that workers should partake of food and drink there.
- Some of these facilities should be made available not only during the midday or midshift interval but also during the recognized rest pauses and breaks.

C. Messrooms and Other Suitable Rooms

- In undertakings where it is not practicable to set up canteens providing appropriate meals, and, where necessary, in other undertakings where such canteens already exist, messroom facilities should be provided, where practicable and appropriate, for individual workers to prepare or heat and take meals provided by themselves.

The facilities so provided should include at least:

- (a) a room in which provision suited to the climate is made for relieving discomfort from cold or heat;
- (b) adequate ventilation and lighting;
- (c) suitable tables and seating facilities in sufficient numbers;
- (d) appropriate appliances for heating food and beverages;
- (e) an adequate supply of wholesome drinking water.

D. Mobile Canteens

- In undertakings in which workers are dispersed over wide work areas, it is desirable, where practicable and necessary, and where other satisfactory facilities are not available, to provide mobile canteens for the sale of appropriate meals to the workers.

E. Other Facilities

- Special consideration should be given to providing shift workers with facilities for obtaining adequate meals and beverages at appropriate times.
- In localities where there are insufficient facilities for purchasing appropriate food, beverages and meals, measures should be taken to provide workers with such facilities.

F. Use of Facilities

- The workers should in no case be compelled, except as required by national laws and regulations for reasons of health, to use any of the feeding facilities provided.

Financing of Feeding Facilities

- financing by the employer of expenditure for constructing, renting or otherwise providing the premises for feeding facilities together with the necessary equipment and furnishings and for continuing overheads and maintenance,

including heating, lighting and cleaning, rates and taxes, insurance and upkeep of premises, equipment and furnishings;

- payment for meals and other food supplied by the workers using the facilities;
- financing of expenditure for wages and insurance of food service personnel, either by the employer or by the workers through payment for meals and other food supplied;

Where meals and other food supplies are made available to the workers directly by the employer, their prices should be reasonable and they should be provided without profit to the employer; any possible financial surplus resulting from the sale should be paid into a fund or special account and used, according to circumstances, either to offset losses or to improve the facilities made available to the workers.

Where meals and other food supplies are made available to the workers by a caterer or contractor, their prices should be reasonable and they should be provided without profit to the employer.

Where the facilities in question are provided by virtue of collective agreements or by special agreements within undertakings, the fund provided for in subparagraph (1) should be administered either by a joint body or by the workers.

Additionally, in no case should a worker be required to contribute towards the cost of welfare facilities that he does not wish to use personally. In cases where workers have to pay for welfare facilities, payment by installment or delay in payment should not be permitted.

In 1971 the ILO along with the WHO and FAO re-examined the state of workers' nutrition and resulted in the recommendations published in the **Report of FAO/ILO/WHO Expert Consultation on workers feeding**. As it was reaffirmed by the author the scope of statutory obligations should not be governed by the size of the unit, should embrace all types of industry in both urban and rural areas, and should be related to the needs of the workers and the industry. The main recommendation of the report read: "that governments promulgate laws and regulations requiring the establishment of workers' feeding programmes with a view to improving the health, welfare and

productivity of workers... such laws and regulations should have as their objective the adequate feeding of the worker and his family, should be designed to stimulate the establishment of appropriate food services... and should recognize the economic limitation of the worker, the undertaking, the industry and the country”.

The **UK legislation** as quoted in the Workplace (Health, Safety and Welfare) Regulations 1992, together with an Approved Code of Practice and additional guidance, could also be mentioned. These specific regulations apply to a very wide range of workplaces, not only factories, shops and offices but, for example, schools, hospitals, hotels and places of entertainment. The term workplace also includes the common parts of shared buildings, private roads and paths on industrial estates and business parks, and temporary work sites (but not construction sites).

From the regulations included in this document, nutrition relevant could be considered **Regulation 25** which refers to **Facilities for rest and to eat meals** and mentions the following:

- (1) Suitable and sufficient rest facilities shall be provided at readily accessible places.
- (2) Rest facilities provided by virtue of paragraph (1) shall -
 - where necessary for reasons of health or safety include, in the case of a new workplace, extension or conversion, rest facilities provided in one or more rest rooms, or, in other cases, in rest rooms or rest areas;
 - include suitable facilities to eat meals where food eaten in the workplace would otherwise be likely to become contaminated.
- (3) Rest rooms and rest areas shall include suitable arrangements to protect non-smokers from discomfort caused by tobacco smoke.
- (4) Suitable facilities shall be provided for any person at work who is a pregnant woman or nursing mother to rest.
- (5) Suitable and sufficient facilities shall be provided for persons at work to eat meals where meals are regularly eaten in the workplace.

As far as discrimination towards obese employees and legislation against it is concerned, in the United States, the main act that provides (limited) protection on a federal level for obese individuals is the [Americans with Disabilities Act](#). In general, the ADA prohibits disability-based discrimination in employment if certain criteria are met. Under the ADA, a person is considered disabled if he

- has a "physical or mental impairment that substantially limits one or more of his major life activities,
- " is stigmatized by "a record of such impairment," or
- is "regarded as having such an impairment."

The ADA's application to obesity is best illustrated by case law. In summary, federal law, as defined by the cases, is seemingly that individuals who suffer discrimination on the basis of their weight are protected under the ADA only *if they can produce evidence* either of a physiological disorder or of a discriminator perceiving there to be a physiological disorder associated with the obesity.

In the United Kingdom, no specific legislation protects an employee from discrimination based purely upon weight. But this does not mean that employees have no protection at all. The [Employment Rights Act 1996](#) restricts an employer from dismissing any employee who has more than one year's service for a reason that is not considered to be "fair" within the meaning of the legislation. Moreover, the [Disability Discrimination Act 1995](#) states that an employee is deemed to have a disability if he has "a physical or mental impairment which has a substantial and long-term effect on his ability to carry out normal day-to-day activities." Although certain conditions are specifically excluded from the DDA, obesity is not.

References

- Food and Agriculture Organization (FAO). 1971. *Report of FAO/ILO/WHO Expert Consultation on workers feeding*, 10-15 May (Rome).
- Health and Safety Commission. 1992. *Workplace (Health, Safety and Welfare) Regulations, Approved Code of Practice and Guidance*, L24, London: HMSO ISBN 0 11 886333 9.
- International Labour Office (ILO). 1956. ILO's Welfare Facilities Recommendation (No 102).
- Office of Public Sector Information. 1996. *Employment Rights Act*, Chapter 18.
- Office of Public Sector Information. 1995. *Disability discrimination Act*, Chapter 50.
- Official Journal L 307 (1993) Council Directive 93/104/EC of 23 November 1993 concerning certain aspects of the organization of working time. 18-24.
- U.S. Department of Justice. *Americans with Disabilities Act*.

ANNEX IV: CHECKLISTS

Healthy eating guidelines



Remember to:

- Emphasize on fruits, vegetables and whole grains
- Eat 5 servings of fruits and vegetables every day
- Prefer smaller serving sizes
- Avoid food with saturated or trans fats
- Drink plenty of water
- Limit salt consumption
- Ask that sauces and high-fat ingredients always be served on the side
- Watch out for added sugars and fats

Be active

References

Centers for Disease Control and Prevention (2009). *Choosing Foods and Beverages for Healthy Meetings, Conferences and Events*.
 University of Minnesota School of Public Health (2008). *Guidelines for Offering Healthy Foods at Meetings, Seminars and Catered Events*.
 U.S. Department of Health and Human Services & U.S. Department of Agriculture (2005). *Dietary Guidelines for Americans 2005*.
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 U.S. Department of health and human services (2006). *Your guide to lowering your blood pressure with DASH*. NIH Publication No. 06-4082.
 Seattle and King County Public Health (2005). *Healthy food choices for meetings*.
 New York State Department of Health. *Food guidelines for healthy meetings*.

Healthy choices for Vending machines



- ☐ Milk (low-fat)
- ☐ Yogurt (low-fat)
- ☐ Cottage cheese
- ☐ Low-fat cheese cubes or cheese sticks
- ☐ Soy milk and other soy products

- ☐ Fresh fruit (fresh and seasonal)
- ☐ Fresh fruit salads
- ☐ Fruit juices (100% juice, unsweetened)
- ☐ Dried fruit

- ☐ Vegetables (baby carrots, broccoli florets, celery sticks)
- ☐ Fresh vegetable salads with low-fat dressing preferably olive oil base
- ☐ Vegetable juices (100% juice, unsweetened)

- ☐ Cereal, low-sugar and whole grain (with fruit or nuts)
- ☐ Whole grain fruit bars
- ☐ Sandwiches made with vegetables and/or chicken/tuna/turkey on whole grain bread
- ☐ Digestive cookies
- ☐ Dry instant pasta and noodle soups (low salt and whole wheat)
- ☐ Rice cakes
- ☐ Fat-free pop corn
- ☐ Baked chips with spices instead of salt
- ☐ Whole grain crackers without salt

- ☐ Plain nuts and seeds (no salt/oil)
- ☐ Honey
- ☐ Marmalade
- ☐ Water, plain
- ☐ Sparkling water
- ☐ Iced tea, no sugar added
- ☐ Coffee, low fat milk and no sugar added

References

Centers for Disease Control and Prevention (2009). *Choosing Foods and Beverages for Healthy Meetings, Conferences and Events*.
 University of Minnesota School of Public Health (2008). *Guidelines for Offering Healthy Foods at Meetings, Seminars and Catered Events*.
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 Seattle and King County Public Health (2005). *Healthy food choices for meetings*.
 New York State Department of Health. *Food guidelines for healthy meetings*.

Healthy choices for Cafeterias



Breakfast

- ☐ High fiber unsweetened cereals (with fruit or nuts)
- ☐ Whole wheat bread
- ☐ Low-fat milk, low-fat yogurt
- ☐ 100% fruit and vegetable juices
- ☐ Fresh and dried fruits
- ☐ Eggs (boiled, scrambled, omelet) with vegetables, e.g. peppers, onions, mushrooms)
- ☐ Honey

Lunch or dinner

- ☐ Steamed vegetables
- ☐ Vegetable soups (low fat, no butter, no mayonnaise)
- ☐ Oatmeal with mushrooms
- ☐ Salads with low-fat dressing (preferable olive oil base)
- ☐ Baked potatoes
- ☐ Brown rice
- ☐ Whole wheat breads
- ☐ Whole grain pasta or noodles with fresh tomato
- ☐ Whole grain pasta salad
- ☐ Broth based or tomato based soups
- ☐ Baked chicken without skin
- ☐ Baked, broiled or grilled fish
- ☐ Sandwiches with lean meats (turkey or roast beef) on whole bread
- ☐ Olive oil, vinegar, pepper sauce, lemon juice for seasoning

Dessert

- ☐ Low-fat frozen yogurt with fruits/honey
- ☐ Fresh fruit
- ☐ Fruit cocktail
- ☐ Sorbet, fruit ice or low-fat ice-cream

References

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Seattle and King County Public Health (2005). *Healthy food choices for meetings*.
New York State Department of Health. *Food guidelines for healthy meetings*.

Healthy choices for business lunches



- ☐ Fresh fruit salad
- ☐ Steamed vegetables (seasoned mixed)
- ☐ Small cubes of low-fat cheese
- ☐ Legumes (beans, lentils, peas)
- ☐ Salads
- ☐ Red, white wine

- ☐ Whole grain pasta salad
- ☐ Whole grain pastas
- ☐ Whole grain rice
- ☐ Whole grain breads
- ☐ Whole grain crackers
- ☐ Low-fat pop corn
- ☐ Oatmeal with mushrooms
- ☐ Potato salad or mashed potatoes (no butter-mayonnaise)
- ☐ Miniature pizzas made with tomato sauce, low-fat mozzarella cheese and mushrooms

- ☐ Chicken, turkey or tuna salad, egg salad
- ☐ Lean meats (chicken, turkey, beef) grilled or broiled
- ☐ Sandwiches and burgers with lean meats (chicken/tuna/turkey), lots of fresh vegetables and whole grain breads (no fries, no mayonnaise)
- ☐ Soups made with meats or beans/lentils (low salt), vegetable puree or low-fat milk
- ☐ Miniature meat balls made with lean meat
- ☐ Pasta with vegetable based sauce
- ☐ Fish and sea food salad (cob salad, shrimp salad, sushi)
- ☐ Broiled or poached seafood (shrimp, salmon, scallops, oysters, clams\mushroom caps with low-fat cheese stuffing

References

- Centers for Disease Control and Prevention (2009). *Choosing Foods and Beverages for Healthy Meetings, Conferences and Events*.
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Healthy choices for breaks

- ☐ Fruit juices (100%, unsweetened)
- ☐ Fresh fruit (fresh and seasonal)
- ☐ Fresh and seasonal vegetables

- ☐ Whole grain breads
- ☐ Whole grain crackers
- ☐ Digestive cookies
- ☐ Dessert bars (nut and seed bars)
- ☐ Fruit pies (no butter, low fat milk)
- ☐ Small bags of baked whole grain and corn snacks

- ☐ Decaffeinated tea or coffee (low fat milk, no sugar added)
- ☐ Small milkshakes (low-fat milk and fruits)
- ☐ Small slices of cake



References

- Centers for Disease Control and Prevention (2009). *Choosing Foods and Beverages for Healthy Meetings, Conferences and Events*.
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