

Integrated approaches to worker health, safety and well-being

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Table of Contents

Executive Summary	8
Main Conclusions	10
Chapter 1: Background	11
Integrated approaches to worker health, safety and well-being	11
Research Questions	13
Chapter 2: Systematic Evidence Review	14
Method	14
Search Strategy	15
Inclusion criteria	15
Exclusion criteria	15
Protocol	15
Data management	15
Results	16
Evidence from evaluations of mixed methodological quality	18
Evidence from interventions classified as “medium-integration”	19
Evidence from high quality evaluations	19
Evidence from mixed-quality evaluations	21
Chapter 3: Framework and Guideline Review	22
Method	23
Inclusion criteria	23
Results	24
Step 1: Mobilize	24
Step 2: Assemble.....	25
Step 3: Assess	26
Step 4: Prioritise.....	27
Step 5: Plan	27
Step 6: Do.....	28
Steps 7 and 8: Evaluate and Improve	29
Chapter 4: Case Studies	30
Method	30
Sampling.....	30
Ethics and data storage	31
Data analysis	31
Individual Case Study analysis	32
Case Study 1. <i>ConnectEast</i> – High integration	33
Case Study 2. <i>Stawell Gold Mines</i> – Medium integration	37
Case Study 3. <i>Prima Furniture</i> – Medium integration	40
Case Study 4. <i>Hoerbiger</i> – High integration	43
Case Study 5. <i>OZChild</i> – High integration.....	46
Case Study 6. <i>The Department of Justice</i> - High integration	49
Discussion	53
Conclusions	57

References	59
Glossary	64
Appendix B – Evidence Review Summary Tables	72
Appendix C – The World Health Organization <i>Healthy Workplaces Framework</i>	87
Appendix D - Interview schedule	88

Executive Summary

Key messages

Integrated approaches to worker health, safety and well-being integrate Occupational Health and Safety (OHS) planning and management with health promotion and health-related organisational functions, in order to provide an overall health and safety management environment in workplaces. This research has identified a growing international evidence base that supports the effectiveness and implementation of such an approach. Six case studies that involved implementing an integrated approach in the Victorian context were evaluated.

Purpose

The purpose of this research was to provide evidence to inform WorkSafe in the development of integrated approaches to worker health and well-being from 2014 onwards. The aims were (1) to summarise evidence concerning the effectiveness of integrated approaches, (2) to review guidelines for the implementation of integrated approaches and (3) to present some case studies of integrated approaches to worker health, safety and well-being that have been implemented in Victorian workplaces.

Rationale

The Victorian WorkHealth program in its current form ends on 31 December, 2013. However, there is an opportunity for WorkSafe to invest in new and innovative initiatives to improve workplace health, safety and well-being, under the WorkHealth brand, from early 2014. Emerging research evidence, stakeholder consultation and the *Impact Evaluation of the WorkHealth Program (2012)* have identified more integrated approaches to worker health as a potential model for addressing a range of complex issues impacting Victorian workplaces. Integrated approaches to worker health, well-being and safety integrate OHS management, planning and budget with health promotion and other health-related organisational functions including Human Resources, in order to provide an overall health management system.

Methods

This research program involved three components. Firstly, a systematic evidence review was conducted to identify international peer-reviewed scientific literature, published since 1990, from relevant academic databases. Thirty-two studies were included in the final sample. Second, recommendations from thirty documents pertaining to the implementation of integrated approaches were collated under the steps provided in the World Health Organization's *Healthy Workplaces Framework*. Thirdly, case studies were developed using six diverse Victorian workplaces. Semi-structured interviews and a comprehensive document audit were conducted at each worksite. The analyses focused on the integration of OHS and health promotion within the organisation, reporting on their institutional and evaluation mechanisms, identified barriers and enablers, as well as perceived outcomes.

Research findings & implications

Empirical evidence supporting integrated approaches

The empirical evidence demonstrated that integrated approaches which not only combined OHS and Health Promotion (HP), but also specifically targeted organisational or environmental change as a mechanism for improving health and safety, conveyed

measurable improvements to individual health, safety and well-being. Integrated interventions had a direct impact on smoking reduction, prevention of musculoskeletal disorders and diminution of stress and poor mental health. Many of these outcomes were reported in studies of high quality, where the causal relationship can be considered to be robust. Mixed effectiveness was found for improving diet and physical activity, and improving organisational safety climate.

Notably, findings indicated a consensus that integrated approaches were effective in accessing 'high-risk' workers, those in occupations associated with a high-risk of accident or injury, and with the least likelihood of engaging in health promotion. Integrated approaches showed promising effectiveness for addressing these compounded risks for manufacturing labourers, home-care workers, and construction industry apprentices, for example.

Furthermore, of the eight studies reporting on the cost-effectiveness of integrated interventions, all but one reported a favourable outcome. Variable assessments of reduced costs were utilised in the evaluations, including reduced worker-compensation costs, absenteeism, medical or health-care costs, and use of sick- or disability-leave.

Implementation of integrated approaches in Victoria

Given the promising evidence base supporting integrated approaches, the findings from the case studies and the framework and guideline review provided a complementary set of criteria to inform the implementation of integrated approaches. The implementation steps were outlined using steps from the WHO *Healthy Workplaces Framework* (Mobilize, Assemble, Assess, Prioritize, Plan, Do, Evaluate, Improve)(1), with examples from Victorian case studies to illustrate.

Common elements of the “**Mobilise**” and “**Assemble**” stages were strong leadership and support from management for increased integration. In four of the cases studied, a specific committee was “assembled” to integrate existing organisational functions responsible for an overall health management system. In other cases, this integration was still in progress, but improved collaboration, planning and communication between OHS on the one hand, and Human Resources on the other were evident. A common leverage point for all of the studied cases was their existing OHS system. The established mechanisms, processes and staffing in place to manage regulated OHS requirements was regarded as a practical foundation for the extension to a broader range of health and well-being activities. Two organisations mentioned the WorkHealth program ‘Healthy Workplace Grants’ as providing specific incentive to pursue opportunities to integrate and extend their current programs.

Comprehensive “**Assessment**” of employee health and safety needs was conducted in two large organisations. In the remaining four cases, the “**Prioritisation**” of workplace needs was based on the decision-making of management, or of the integrated health committee. A range of programs and interventions was planned and actioned (“**Plan**” and “**Do**”). Activities underway in Victorian workplaces included social activities, community participation and volunteering, seminars and education, provision of a subsidised Employee Assistance Provider, and the provision of policies aimed at ameliorating work-family or work-life conflict, via a suite of flexible working arrangements. Interventions aimed at improving diet, nutrition and physical activity were popular programs implemented by the case study organisations. Victorian workplaces studied were targeting some early, rapidly-adopted, accessible and low-cost initiatives (e.g.: fun runs, fitness classes, health checks, healthy food strategies) as feasible starting points, to continue the momentum introduced by WorkHealth programs. External service providers were a common strategy used by the employers or management committee. A notable challenge across the case studies was the degree of staff participation and involvement in planning and program action. Identified barriers to staff involvement in health activities included a geographically dispersed, or predominantly offsite workforce, and

casual and shift-workers. Concerns about engaging them in the planning process were also mentioned, mainly because of the risk of increasing expectations that could not be met.

The final steps, “**Evaluate**” and “**Improve**”, were developing in the cases. There was notable intention for program evaluation by each of the organisations, but the method to apply was very much questioned. Key informants were unsure about which indicators, or which tools to use to assess program outcomes.

Common elements of effective integrated approaches from all three research elements included strong leadership from management; strong organisational support for change; high worker participation and engagement; a focus on organisational change to support improved individual health and safety; and building on infrastructure already in place to deliver OHS. Barriers to integration and implementation included delivery to diverse workforces and worksites within single organisations, limited time, expertise, and financial resources, and a lack of efficiency and knowledge about optimal evaluation and indicators of effectiveness.

Main Conclusions

- Integrated approaches are effective for both physical and mental health outcomes; evidence also demonstrates positive return on investment; and access to workers in “high-risk” occupations, who are the least likely to participate in health promotion programs.
- The evaluated case studies have demonstrated an ability to build upon their existing OHS structures in order to introduce some low-cost, rapidly-adopted health-promotion strategies.
- Implementation of integrated approaches is now well underway in Victorian workplaces. Strong management and leadership and an established ‘integrated health committee’ appear to underpin successful implementation.
- Key challenges for workplaces include staff engagement and participation; inadequate internal expertise to source appropriate programs; resource (time, staff, financial) constraints; and appropriate evaluation tools.

Use of the research

Although integrated approaches have been progressively developed and implemented internationally for over a decade, implementation in the Australian context is still in the early stages. This program of research has highlighted the international evidence to support a case for the effectiveness of integrated approaches. The research provided expert consensus on planning and implementation. Integrated approaches are underway in some Victorian workplaces. These are under-pinned by a culture of care and implemented with strong management commitment and support. Other common enablers were identified, suggesting indicators of organisational readiness for integrated health management approaches. Recommended support for workplaces included the provision of information, practical support, guidance on key indicators of change or improvement, and evaluation tools and management systems. Together, findings from this research should inform the development of WorkSafe strategies in further supporting and enhancing the implementation of integrated approaches across Victoria in 2014.

Chapter 1: Background

The WorkHealth program in its current form ends on 31 December 2013. However, there is an opportunity for WorkSafe to invest in new and innovative initiatives to improve workplace health, safety and well-being, under the WorkHealth brand, from 2014 onwards. Emerging research evidence, stakeholder consultation and the *Impact Evaluation of the WorkHealth Program (2)* have identified further investigation into integrated approaches to worker health as a potential model for addressing a range of complex issues impacting Victorian workplaces. Integrated approaches take a holistic view of the risks (physical, mental, environmental and organisational) affecting worker health and safety, and are aligned with the WorkSafe focus on early prevention of physical and psychosocial health risks, within its broader health and safety framework.

The overall purpose of this research was to provide evidence to inform WorkHealth in the design and development of integrated approaches to worker health, safety and well-being. The research identified practice principles and a framework for the implementation of integrated approaches to worker health and well-being. It also provided workplace examples specific to the current legal, regulatory and workplace context in Victoria. This project was commissioned by WorkSafe and aligned to its 2017 Strategy. It is part of the ISCRR-Occupational Health and Safety program stream and therefore in accordance with ISCRR's strategic focus on integrated worker health, psychosocial risks and mental well-being, and risks conveyed by work and non-work factors.

Integrated approaches to worker health, safety and well-being

Integrated approaches to worker health combine occupational safety and injury prevention with health promotion to advance worker health and well-being (3). Hymel et al. (4) define integrated approaches as “the strategic and systematic integration of distinct environmental, health and safety policies and programs into a continuum of activities that enhances the overall health and well-being of the workforce, and prevents work-related injuries and illnesses”. Integrated approaches are under-pinned by a socio-ecological understanding of the source of risks to worker health and safety; integrated programs therefore target individual, organisational, and psychosocial change to improve worker health and safety (5-9). The set of integrated, comprehensive actions are simultaneously tied to the promotion of productivity and success of a company or organisation (10). It is increasingly evident that engaging in comprehensive strategies to promote health, and reduce workforce risks can ameliorate the costs associated with poor performance in organisations (11-13); integrated approaches are also likely to be more effective for worker health than each approach (OHS and HP) taken separately (3, 4).

Internationally, integrated approaches to worker health have been conceptualised and theorised in the scientific literature for approximately two decades. While the empirical evidence documenting the effectiveness of IA programs is still in its infancy (14), a growing body of expert practice and implementation literature has emerged, predominantly from Europe, Canada, and the United States of America (15-18). There is consensus as to the benefits of integrating OHS and HP, including broader organisational change such as employee benefits, and this provides a basis for the consideration of transferring integrated approaches to Victorian workplaces.

Contemporary workplaces, including in Australia, are characterised by the intensification of work, high job demands, insecure and competitive labour markets, casual jobs, long-hours, non-standard hours, and shift-work (19-22). Most employees are balancing unpaid care-loads with their paid occupation, and the workforce is ageing and managing a considerable

burden of disease and chronic illness, including physical and mental health (4, 23). Organisations face direct and indirect costs conveyed to them via poor health, injury, disability and chronic illness management. These include reduced productivity and performance, medical and health care costs, worker compensation costs, presenteeism, absenteeism, leave and costs associated with the management of injury, disability and return-to-work (21). Typically, this multitude of health risks and costs has been managed by disparate functions in organisations and businesses – human resources, operations, employee assistance providers, safety, occupational medicine, employee and industrial relations (4, 10). Integrated approaches are natural collaborations between the shared goals of each of these functions, thereby streamlining resources, reducing overlap and inefficiencies (9, 24). Rather than detracting from imperatives to provide safe workplaces, typically core business for OHS departments, integrated approaches complement injury and illness prevention with health promotion, thereby reducing the likelihood that “well” employees will become “unwell” in adverse, unsafe work environments (25, 26).

In practice, integrated approaches integrate OHS and HP programs, policies, systems and processes. Further, they are contextualised within an organisational development strategy that supports improved employee benefits via Human Resources and related functions. Integrated workplace interventions recognise the interaction between safety, environment and health, creating a workplace climate in which health and safety are valued, and managed efficiently with a view to improve organisational productivity.

The definition of “integrated approaches” utilised in this research is based on five criteria iterated by the National Institute for Occupational Safety and Health (NIOSH) and the SafeWell Practice Guidelines (17, 18):

Criterion 1. Integrated domains of intervention and targeted outcomes: identification of multi-level activities combining individual worker and workplace organisational actions, occupational and personal health;

Criterion 2. System integration: overview of the institutional organisation, communication strategy and existing collaboration mechanisms;

Criterion 3. People engagement: active participation of workers and management in the planning, implementation and follow-up of integrated activities;

Criterion 4. Clear planning and resources allocated: program feasibility in terms of human and financial resources, and clarity (e.g. available related strategic documents);

Criterion 5. Program evaluation and continual improvement: evaluation/assessment mechanisms, flexibility and responsiveness in the implementation, barriers and problem management.

Research Questions

The specific research questions were as follows:

1. What evidence exists to support the integration of OHS and health promotion in workplaces?
2. What worker and organisational outcomes have been addressed?
3. Where is there sufficient evidence or examples of 'best practice' for action, transferability and applicability to the Australian context?
4. What can we learn from examples of integrated programmes currently active in Victorian workplaces?

In order to address them, a three-phase program of research was conducted:

1. Systematic review of empirical evidence.
2. Framework and guideline review.
3. Exploratory case studies.

Chapter 2: Systematic Evidence Review

In this Chapter:

- The evidence review method is presented
- Summary descriptions of n=32 studies are provided
- Main results from the evidence review are summarised

Method

A systematic review of the empirical evidence on integrated approaches to worker health, well-being and safety was conducted. The scope of the review is summarised in the categories below (PICO Statement). The method was designed to include studies that provided evidence of an integrated approach, and that were evaluations or trials of workplace programs or interventions.

Population: Employers, organisations and/or employees; includes Australian and international; small/medium/large; private, government and non-government sectors.

Intervention: workplace programs implementing an integrated approach to worker health, safety and well-being. Integrated approaches are aimed at improving worker safety and health by integrating OHS and HP functions of the organisation via individual worker actions and behaviours and organisational change. The following classifications of integrated approaches were utilised, based on the 5-criteria definition of integration utilised in this research:

High-integration: Collaboration between OHS and HP functions of the organisation, that is, integrated delivery of programs. Targets of intervention are both individual behaviours and organisational factors.

Medium-integration: Collaboration between OHS and HP functions of the organisation, that is, integrated delivery of programs. Targets of intervention are either individual behaviours or organisational / workplace factors.

[Not integrated]: OHS and HP delivered separately, targeting either individual or workplace factors. Studies reporting on these interventions were excluded from the evidence review.

Comparison: This review includes, but is not limited to, randomised controlled trials. Any comparison, control, baseline or referent group is included, where available.

Outcome: Worker health, well-being, safety, injury prevention.

Search Strategy

The search included the following databases: The Cochrane Library; Medline; Embase; CINAHL; PsycINFO; Scopus; ISI Web of Science; ProQuest. The following search terms were used in combination: (“Occupational health” OR “Occupational Safety”) AND (“Health promotion”) AND (“integrated” OR “whole” OR “total” OR “combined” OR “complete” OR “comprehensive” OR “holistic” OR “whole worker”). The search was limited to English language papers, a date range 1990-present and peer-reviewed scientific journals.

Inclusion criteria

Studies included in the Evidence Review were required to meet ALL of the following inclusion criteria:

1. Reported on an evaluation of a workplace intervention (or program);
2. Reported on interventions targeting improvements in any or all of the following: worker health, well-being, safety, protection (and relevant term variations);
3. Demonstrated integration of program delivery, either via:
 - OHS and HP management systems (medium integration), targeting individual behaviour only (medium integration - individual focus), or
 - OHS and HP management systems (medium integration), targeting organisational change only (medium integration – organisational focus), or
 - Both (high-integration).

Exclusion criteria

The following studies were excluded from the evidence review:

1. Papers reporting on etiologic, conceptual or theoretical models regarding integrated approaches
2. Narrative or literature reviews, systematic reviews.
3. Studies reporting on programs / interventions with *no evidence of integrated approaches*, that is programs:
 - Targeting health promotion only, no integrated delivery with OHS, or
 - Targeting worker health and safety only via OHS, no integration with HR / HP, or
 - Reporting insufficient information to ascertain an integrated approach.

Protocol

A two-step review process was conducted. Abstracts of all studies identified in the search were reviewed, and ineligible types of studies (e.g. reviews, non-quantitative evaluations; non-relevant topics) were excluded. The remaining papers were subject to full review by the research team. A two-rater process was applied to determine the final sample against the eligibility criteria; a third rater adjudicated any disparities. A flow chart is provided in Appendix A, illustrating studies included and excluded at each step.

Data management

All studies meeting the eligibility criteria were reviewed in detail. Given the limited number of RCTs related to the subject, a wide range of study designs, targeting a broad range of

organisational, individual health, safety and well-being outcomes were included. Data were extracted in table form. Studies were grouped by the type of integrated approach used (high- or medium-integration), and appraisal of study quality. Study quality was classified according to the level of causal inference provided by the study design, using the following criteria adapted from La Montagne (27) attributing causal inference:

- Level 1.** Descriptive, anecdotal, authoritative;
- Level 2.** Evidence without intervention, observational following an ‘event’;
- Level 3.** Evidence obtained with evaluation, but uncontrolled, no randomisation;
- Level 4.** Evidence of properly conducted study, pre- and post- testing with control group, non-randomised;
- Level 5.** Properly conducted, randomised controlled trial.

To estimate a likely causal relationship between the interventions in included studies and outcomes reported, only levels 3, 4 and 5 were considered.

Results

Thirty-two studies were included in the final sample of the evidence review. The studies, categorised by level of integration and causal inference rating, are summarised in Table 1.

Table 1: Description of studies included in evidence review

Level of integration/evaluation quality	High quality (levels 4 & 5)	Mixed quality (level 3)	TOTAL, n (%)
High-integration	13	4	17 (53)
Medium integration – individual behaviour	10	3	13 (40)
Medium integration – organisational change	2	-	2 (7)
			N = 32

The presentation of results below is stratified by level of integration and study quality. Individual studies are described in detail in tables (Appendix B). The tabled study descriptions include the following: authors, date and country, study population, workplace setting, study aims and intervention targets, intervention type and mode of delivery, evidence of integration, design and quality of evaluation, outcomes assessed and results of intervention effectiveness. The details of individual studies are not repeated in the text below.

Evidence from interventions classified as “high-integration”

Seventeen studies (53%) reported interventions with demonstrated evidence of “high-integration”. Of these, 13 had a high causal inference rating (levels 4 and 5) and 4 were of mixed quality, with a lower causal inference rating (level 3). By definition, interventions classified as “high-integration” targeted organisational or environmental components in the intervention along with individual behaviour change. Organisational involvement in worker health programs can be as support for individual behaviour change, as a target of

intervention itself, or as a means of embedding, implementing and sustaining strategies for worker health, safety and well-being (28). Many of the highly-integrated interventions summarized here were premised on two, or all three dimensions of organisational involvement.

Evidence from high quality evaluations

These studies were either properly-conducted experimental trials with random assignment to either intervention or control groups, or compared intervention group(s) with a referent, or comparison group or worksite. These studies therefore convey a robust level of causal inference: reported effects are likely to be attributable to the intervention, rather than exogenous factors not accounted for. Details of studies are presented in Appendix B, Table 1.

Integrated interventions targeting physical outcomes and health and safety behaviours were the most common in the high-quality, well-conducted studies.

- Goetzel et al. (29) and Dejoy et al. (30) reported a randomized controlled trial of a multi-worksite intervention in a large, manufacturing company in the US, comparing two levels of intervention: *moderate* (support for individual behaviour change) and *intense*, adding organisational supports to the *moderate* strategies. Both intervention groups were effective in sustaining employee Body Mass Index (BMI), compared to a mean increase in 0.2 BMI in control sites, but with no additional effects noted in the *intense* arm compared to the *moderate* arm.
- *WellWorks* (and *WellWorks 2*) were interventions delivered in manufacturing worksites in the US (31, 32). The aim of the *WellWorks* intervention was to reduce cancer risks conveyed by individual health behaviours (smoking, dietary intake) and occupational exposures. The first study, *WellWorks*, compared the integrated intervention with a control group (31). The authors reported dietary improvements (less fat; more fibre) in the intervention group, but no effect on smoking rates.

In *WellWorks2*, two versions of the intervention were trialled (32). Smoking cessation rates were more than double amongst the blue-collar workers participating in the *integrated* arm compared to those in the *health promotion only* arm, although no significant dietary improvements were found. Furthermore, process evaluations of both interventions found that participation in the intervention was higher for staff employed in an *integrated arm* worksite, compared to those in *health promotion only* (33); and for those who felt that their employer was reducing occupational exposure alongside the introduction of health-promotion activities (34).

- The *Healthy Directions* intervention targeted individual, and organisational change to enhance cancer prevention (35). While overall intervention effects were modest (improved multi-vitamin use; improved physical activity), Sorensen et al. report greater effectiveness in workers compared with managers, and in multi-ethnic employees.
- Badii et al., (2006) (37) targeted health-care workers and the prevention, early intervention, and management of musculoskeletal disorders (MSDs) (36). They reported increased incidences of injuries and increased time loss at the intervention site, but reduced compensation and health-care costs compared to historical (comparison) data. This suggests a favourable effect of the intervention in reducing costs via early identification, treatment and prompt return-to-work.

A smaller group of high quality studies targeted psychosocial aspects of the organisational environments to improve physical health, or both physical health and psychological well-being.

- Maes et al. (37) reported on an intervention aimed at improving the organisation of work, ergonomic conditions and the psychosocial conditions of the job (e.g. social support, decision latitude, variation in tasks). The main effects found were reduced psychological demands, and improved job control in the intervention group, and a significant lower absentee rate over the 3-year follow-up.
- Bergstrom et al. (38) implemented change to the psychosocial climate in the workplace as a means to reduce smoking and sick leave and improve health-related quality of life. They reported a reduction in smoking rates in three of the four intervention sites, improved health-related quality of life in two sites, and decreased sick leave in one worksite.
- Tveito and Eriksen (39) trialled an integrated health intervention aimed at reducing injuries and sick leave, reducing stress and improving coping and job quality (reduced demands; higher control). They reported improved health, physical fitness, stress management, and reduced pain in the intervention group on a study-specific, self-reported measure. No changes to sick leave, or health-related quality of life (assessed using a standardized instrument) were found.

Evidence from evaluations of mixed methodological quality

The following studies reported on comprehensive, highly-integrated interventions. However, these studies were non-experimental in design: there was no control or comparison group, and no random assignment of participants or worksites into the intervention group. Rather, the four studies summarized here (for details, see Appendix B, Table 2) collected baseline (pre-) and post-intervention data from random samples of employees at worksite(s). Intervention effects were assessed by a comparison between baseline assessments and those conducted post-intervention. Studies of this kind can demonstrate a *correlation* between the intervention and effects. However, they do not account for possible factors exogenous to the intervention that might have influenced reported outcomes. Therefore, the strength of the *causal* relationship between the intervention and the effects is less robust compared to the 'high-quality' studies reported above.

Three pre- and post-intervention studies have evaluated integrated interventions aimed at reducing MSDs or back pain in the employee population.

- Nelson et al. (40) evaluated the effect of a 6-component ergonomics intervention for nurses in acute-care units. Reported effects included a reduction in injury rates; a reduction in number of days lost to injury and 'modified duty' days following an injury; decreased unsafe incident reports; increased job satisfaction; and a significant reduction in costs post-intervention compared to the 9 months preceding the intervention (medical costs, medical compensation costs and paid sick-leave days).
- Cunningham et al. (41) evaluated the *Working Backs Project*, using a health promotion framework to deliver occupation health and safety information to reduce back-pain related disability in nurses. They reported significant improvements in manager attitudes and management of back injury. There were no effects on back-related sick leave, or number of days leave.

- Curwin et al. (42) evaluated the effect of an integrated intervention on the prevalence and severity of MSDs. The intervention was delivered across 12 sites in one Canadian government department, and was associated with a reduction in prevalence of MSDs compared to pre-intervention; however, no reduction in overall bodily pain was detected. Back pain was reduced, as was the proportion of employees reporting pain in more than five bodily regions.

A highly-integrated, mixed methodological quality intervention targeted both physical and psychosocial outcomes:

- Petterson et al. (43) report on the effects of implementing organisational change to reduce stress, improve job quality and general health for nurses in Sweden. Improvements in general health were observed, which were more effective for home-care workers, the most 'at-risk' group for injuries, compared to nurses employed in a nursing-home setting. Home-care workers reported increased management support, decreased physical workload and increased perceived intra-personal resources.

Evidence from interventions classified as “medium-integration”

Fifteen studies (47%) were classified as “medium-integration”. The majority (n=13) reported on interventions that took an integrated approach to planning, managing, and implementing the intervention, but were only targeting individual change, with no organisational change implemented. These studies demonstrate the implementation of integrated approaches. However, in the main, they do not involve the organisation or worksite in the *content* of the interventions. The organisation is not targeted as a *mechanism* for change, to support improvements to either organisational or individual outcomes, even though both may be evaluated. Therefore, these studies are distinct from the studies classified as ‘high-integration’, where comprehensive organisational change is targeted as a means of effecting individual and organisational improvement. A further two studies demonstrated an integrated approach, focusing on organisational change only, with no individual-behaviour components targeted in the content interventions. These are therefore distinct from highly-integrated interventions.

Evidence from high quality evaluations

The details of the following studies are presented in Table 3 (Appendix B). Several of these studies targeted smoking, nutrition and physical activity outcomes.

- Okechukwu and colleagues (44) conducted an RCT of an intervention for apprentice trainees in the US building and construction industry to inform them about occupational hazards and the potential additive toxicity from these exposures conveyed by smoking. The intervention was effective in reducing and sustaining a reduction in smoking intensity; however, initial quit rates in the intervention group were not sustained at 6-month follow-up.
- The *PHLAME* intervention (45, 46) integrated health-promotion (diet, physical fitness) with safety and injury prevention for fire-fighters across 5 departments in one US state. The two intervention arms were individual delivery versus team-based delivery. Both intervention worksites reported improved diet, fitness and less weight-gain compared to control sites; an 8% decrease in worker-compensation costs compared with a 13% increase in the control sites; and lower overall medical costs.

- Roter et al. (47) reported on a participatory research intervention jointly managed and developed by union presidents, union members and business leaders in the building trades in the US. The reported study is best characterized as a pilot, reporting no health outcomes, but assessing acceptability, knowledge and awareness – all of which were positively affected in the intervention group.
- Verweij and colleagues (48, 49) evaluated a workplace health policy introduced across intervention sites aimed at reducing sedentary behaviour, reducing weight via dietary change and increasing physical activity. Intervention worksites reported higher fruit and vegetable intake and reduced sedentary behaviour of nearly 30 minutes per day. Employees initially classified as ‘obese’ (based on their BMI) increased their physical activity, but this was not the case for those classified as normal, or overweight.
- Talvi et al. (50) reported few effects of their health and safety intervention on reported health concerns. While physical activity increased following the individualized counselling intervention, there were no differences at follow-up in dietary intake, bio-metric assessments, smoking, sleep disorders or mental health between intervention and control sites.

The remaining studies focussed more on organisational change to improve health, or safety climate:

- Kines et al. (51) evaluated the effect of a professionally-led management intervention to improve the safety culture, safety behaviour and problem-solving capacity of managers or business owners. The intensive intervention improved safety culture, but had no effect on observational assessments of safety in these organisations at follow-up.
- Basen-Engquist et al. (52) evaluated the effect of cancer-prevention and health promotion intervention on organisational health and safety climate. Employee-advisory boards (EABs) were established at each worksite. Organisational *health* climate increased significantly at intervention sites, but no such increase was found for organisational *safety* climate.
- Serxner et al. (53) investigated the effect of a comprehensive health and safety intervention aimed to streamline all organisational wellness activities across 20 worksites in one company. They reported a reduction in number of cases per employee, and shorter sick leave per case; this contributed to a reduction in sick leave use (5%) for intervention participants, compared with a 15% increase in use by non-participants.

Two studies reported on mental health interventions to improve either mental or physical health for employees.

- Vuori et al. (54) described a reduction in depression symptoms, and improved mental resources (optimism, daily enjoyment of, and active engagement in work tasks) following an intensive group-delivered intervention in a Finnish study of white-collar employees.
- Kawakami and colleagues (55) evaluated the effect of a stress-reduction intervention on depression symptoms, blood pressure, and sick leave usage in Japanese blue-collar workers. A participatory approach was employed to target aspects of work

systems, processes, equipment and work organisation. The researchers reported sustained main effects on depression and sick-leave usage, but no effect on blood pressure at two-year follow-up.

Evidence from mixed-quality evaluations

As stated above, these studies have a lower causal inference rating, and therefore convey a lower level of confidence that the effects are attributable to the intervention (See Table 4, Appendix B).

- Barbeau et al. (56) tested the effectiveness of a multi-component smoking cessation intervention delivered to construction industry apprentices via their training curriculum, embedded within their health and safety training. They found threefold increased odds of smoking cessation for participants versus non-participants one month after the intervention.
- Ott et al. (57) evaluated the effect of integrating health promotion into occupational health and safety in a large cohort of low-medium skilled workers in one municipal region. They reported reduced mortality, but no effect on the incidence of chronic disease.
- Elo et al. (58) reported on a participatory, survey-feedback model for identifying and targeting workplace stressors. They outlined improved variation on work tasks, and reduced mental and physical strenuousness.

Summary of empirical evidence evaluating integrated approaches

Evidence of strong support for integrated approaches to:

- a. Manage, reduce and prevent MSDs**
- b. Improve mental health (depression, anxiety), and reduce stress**
- c. Demonstrate reduced medical and health-care costs**
- d. Reduce leave usage, absenteeism**
- e. Improve reach and participation of workers most 'at-risk'**

Moderate support for integrated approaches to:

- a. Improve psychosocial job aspects (demand, control)**
- b. Manage weight and nutrition**
- c. Improve physical activity**
- d. Ameliorate organisational health climate**
- e. Reduce mortality**

Chapter 3: Framework and Guideline Review

In this Chapter:

- The purpose and method for the framework review are presented
- The WHO *Healthy Workplaces Framework* is introduced
- The implementation guidelines for integrated approaches are summarised within the 8 steps from the WHO Framework

The purpose of this framework and guideline review is to summarise relevant information pertaining to the planning, implementation and evaluation of integrated approaches to worker health, safety and well-being. This review canvassed expert consensus and evidence-informed strategies and recommendations for implementing integrated workplace health and safety programs. This information has been collated to inform the design and implementation of innovative programs by WorkHealth in 2014.

The summary of the recommendations identified in this review is presented within a framework. There are several established, evidence-informed frameworks available to inform the planning, implementation, and evaluation of programs aimed at workplace health that are relevant to integrated approaches. Examples include the *European Approach to Promoting Workplace Health* (59), the *Comprehensive Workplace Health Promotion Planning Framework* (60), and the *SafeWell Integrated Management System* (17).

The WHO Healthy Workplaces Initiative also provides a framework and model to guide the implementation and evaluation of workplace health programs, the *Healthy Workplaces Framework and Model* (1). This framework is under-pinned by the broad, comprehensive definition of a healthy workplace as “one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and well-being of workers and the sustainability of the workplace” (1). This framework recommends consideration of the physical, psychosocial, and organisational aspects of work, as well as workers’ personal health resources. The strength of this framework is that it includes consideration of both the *process* and *content* of workplace strategies and programs, allowing a good understanding of how workplaces have attempted to integrate health promotion with their OHS strategies for both large and small-medium enterprises.

While other frameworks, in particular the *SafeWell Integrated Management System* (17), give a comprehensive strategy for the implementation of integrated approaches, the WHO model offers a guiding set of flexible principles or steps for consideration. Therefore, this model was selected as appropriate for collating consensus advice from a diverse range of sources within these guiding principles. The SafeWell model presents a complete system, optimally suited as a comprehensive implementation framework, but less amenable to the inclusion of information from other sources – the main purpose of this scoping review.

The *Healthy Workplaces Framework* (see Appendix C) has eight process steps: **Mobilise, Assemble, Assess, Prioritise, Plan, Do, Evaluate, Improve**, and is premised on

established models for OHS management. This framework also embeds the five criteria upon which the definition of integrated approaches is based and operationalised for the present program of research: integrated domains of intervention, system integration, people engagement, clear planning and resourcing, evaluation, and continual improvement. The eight steps document the stages of implementation of an integrated approach to workplace health and safety overlaid with integrated content domains (physical, personal, psychosocial, enterprise/community involvement) that inform the range of targets that workplace interventions can address. For the framework and guideline review, findings are presented under the eight steps identified in the *WHO Healthy Workplaces Framework*. The terms “workplace program” and “workplace intervention” are used inter-changeably in this chapter, and broadly refer to any change(s) implemented at the workplace level as part of an integrated approach. Depending on the health or safety objective, these ‘interventions’ may include policy change, change to work organisation or tasks, environmental change, or specific health programs.

Method

The recommendations and strategies presented in the framework review arise from the following:

1. Papers identified in the evidence review (see Chapter 2) that were not eligible for inclusion in the evidence review, but were classified as ‘of interest’ at the full-review stage.
2. Purposive searching of established and authoritative websites of Australian and international agencies identified or referred to in step 1. The following websites were searched for relevant documents:
 - ComCare (Australian Government)
 - Department of Health (Victorian Government)
 - European Network for Workplace Health Promotion
 - Finnish Institute of Occupational Health
 - Psychosocial Risk Management Excellent Framework (PRIMA_EF), UK
 - United Kingdom Health and Safety Executive
 - National Institute for Occupational Safety and Health (NIOSH), US
 - Harvard School of Public Health Centre for Work, Health and Well-being (NIOSH Center of Excellence)
 - Centre for the Promotion of Health in the New England Workplace (CPH-NEW)
 - University of Iowa Healthier Workforce Center for Excellence
 - World Health Organisation
 - Canadian Center for Occupational Health and Safety
 - The Health Communication Unit (THCU), University of Toronto
 - British Columbia Ministry of Health

Inclusion criteria

Identified papers, reports or documents were included in this review if they presented a conceptual model or program logic of an integrated approach to worker health, well-being and safety, or if they presented guidelines or plans (e.g. for organisations or employers) for the planning, implementation or evaluation of an integrated approach to worker health, safety and well-being. The framework and guideline review was not a systematic review; rather it was a purposive, targeted search, collating relevant, authoritative strategies and guidelines to establish consensus and inform the practice and implementation of integrated approaches.

Results

Thirty documents were included in this framework and guideline review. These included published scientific papers (literature reviews, conceptual articles, position papers) and 'grey' literature (government and non-government reports, publicly-available guidelines and workplace 'toolkits'). The summaries within each 'step' present points of consensus across multiple documents, with each step building upon the actions and outcomes of the previous step. It is accepted that some aspects will be more or less relevant to particular workplaces. However, they constitute a set of guiding principles for the implementation of an integrated approach, amenable to tailoring and adaption to individual workplaces and settings.

Step 1: Mobilize

Commitment from an organisation at the senior level is a critical enabler of all subsequent implementation activities, and this first stage is crucial to the uptake and maintenance of subsequent interventions (63, 64). While the usual entry-point is engagement with senior management or the business owner, engagement at this stage may, depending on the workplace type, canvass union leaders, other relevant stakeholders, any 'informal' leaders or persons of influence within an organisation, and boards of company directors (9, 18). This phase of 'organisational recruitment' is the foundation for any subsequent implementation, and depends on the establishment of critical relationships (61). Actions at this stage typically include presentations at management, board or supervisor meetings, and the identification of key contact persons within the organisation likely to have influence over the subsequent stages of implementation.

There is consensus that this phase is premised on the 'business case' for integrated approaches (64, 67). In small businesses, the engagement of the business owner may be the main core relationship required for this stage; in larger organisations, there may be multiple audiences across the organisation, including HR and OHS departments, personnel, senior and middle management, plus any relevant external stakeholders. For less receptive organisations, that is, those without any stated interest in HP, OHS departments become the key entry point and contact for this stage.

Expert consensus is that the key messages delivered about integrated approaches at this stage include (18, 19, 59, 61-64):

- Delineation of potential cost-benefits via efficient resourcing and the reduction of duplication between HP and OHS systems and processes;
- Existing shared goals, and rationale for streamlining and joint management and operation of HP and OHS;
- Benefits of employee and manager health to productivity and performance, and reduced medical and compensation costs, costs associated with leave, disability and the management of return-to-work.
- Shared data management between OHS, HR, administration, personnel and other operational functions where appropriate, or shared aggregate, de-identified data
- Shared data to inform program content, workplace needs, and continual improvement with increasing efficiency, tailoring and continual improvement

The main outcomes of this stage are to not only 'gain permission' to implement an integrated health and safety program, but rather to secure strong leadership and support, first from senior management, and ultimately from managers or supervisors at all levels (1, 23, 63). This is necessary in the short-term; senior managers need to define roles and responsibilities for the implementation of an integrated approach. This involves the integration of disparate organisational functions (OHS, HR, administration, operations), workload management, the

introduction of new policies and processes, and the recruitment and engagement of managers, supervisors and staff (62,67). Senior management also have a role in the promotion, communication and support of the effective management of change across the organisation (23).

In the longer term, the goal of implementing a robust mobilization phase is to embed and 'institutionalise' the goals of an integrated approach to worker health and safety as part of the organisational vision, strategy and culture (17, 28). In this way, operational and strategic decision-making is likely to be shaped by priority consideration for the health, safety and well-being of employees, and as part of the productivity goals (1, 65). NIOSH note that the connection of workforce health and safety to the core products, services and values of the organisation is the goal of leadership engagement (18).

Step 2: Assemble

Assembling the staff, resources and budget for the implementation of an integrated approach is the next step. There is universal consensus that a multi-disciplinary, representative committee, employee advisory board or specific team should be established (18, 23, 62, 63, 66). While in some settings it is appropriate for the existing OHS team to take on this additional role, this may constitute a risk to integration, as OHS committees have regulatory and legal requirements as core responsibilities which are likely to take precedence (1). To address this, additional resourcing (time, staff and budget) is recommended to support the integration of organisational health promotion and individual well-being activities into existing OHS infrastructure. Other resourcing and support should also be considered at this stage. For example, technical and administrative support to streamline data collection across separate operational arms of the organisation might be required to support later evaluation.

There is also universal consensus that this committee should be representative of a broad range of stakeholders in any organisation. This may include employers, employees, union representatives, health and safety professionals, human resource personnel, relevant government agencies, health coaches or educators, and any external providers of safety and health services or programs (safety training, employee-assistance providers, health-check providers) (9, 62, 67). In small-to-medium enterprises, this may involve external persons with relevant expertise as consultants to the committee, such as a local health-promotion practitioner, or a local industry peak body. The membership of the committee should reflect the 'balance of concerns' central to integrated approaches, that is, the committee should constitute equal representation and prioritization of lifestyle, occupational, organisational and environmental risks to employees' health and safety (9).

Burton recommends that at least half of the membership of the committee be non-management employees (1). The representation and involvement of staff at every phase of decision-making and implementation is central to integrated approaches (5, 17, 62, 68). Employees have experiential knowledge that is critical to the identification of workers' health and safety risks. Furthermore, employees are able to ascertain congruence between health risks and any workplace policies, processes and programs implemented to address these needs (69). It is also likely that involvement and engagement in all phases of implementation is empowering, and thus, potentially health-promoting (62, 69). There is consensus that the committee should constitute representation from diverse groups within the organisation, by occupational type, level and gender for example, as the perceived health needs and risks may be diverse across any organisation (1, 62).

Middle managers and supervisors should also be represented on the committee or integrated health team (1, 62, 69). Middle-management, as the link between senior management and staff, has a key role in supporting employees, demonstrating leadership skills and managing change in the workplace. Punnett et al. (69) note that managers'

concerns, about workload and operational constraints for example, should be heard, as they pre-empt barriers to employee participation in health, safety and well-being programs.

The terms of reference of this committee may include (17):

- Identification of health and safety priorities; plan interventions and set goals;
- Recommending resource allocation;
- Decision-making and recommendations for change via an integrated 'lens';
- Facilitating the implementation of new programs, policies, policies (via work-groups, champions, team-leaders etc.);
- Reporting to senior management, executive, board etc.;
- Managing communication strategies;
- Reviewing: evaluate, respond and improve.

Examples of 'assembling' a team for an integrated approach to worker health and safety in the empirical literature include:

- Employee Advisory Boards, local to each worksite when multiple sites of single organisation are involved (31, 32, 34, 43, 47, 52);
- Work groups (staff and supervisor) established to provide feedback to OHS and management committee (38);
- Managers, OHS staff and employees engaged in planning for organisational change, informed by a regular staff survey-feedback approach (58);
- Team leader (staff) selected as staff representative to facilitate intervention and liaise with management (40, 45).

Step 3: Assess

Prior to the planning of any health program, policy or organisational change, a needs assessment is required (1, 62, 63, 66). Assessing needs, to inform the priorities and 'desired future' of the organisation, ensures tailored, efficient strategies are implemented, specific to the workplace or organisation.

In many instances, data can be compiled and integrated from existing data sources within an organisation. The SafeWell approach also recommends the integration of data management systems at this stage to ensure co-ordination across multiple arms of the organisation (HR, OHS, operations etc.), and to establish consistent mechanisms for the evaluation and tracking of change over time (17). Some new data collection is also suggested to assess employee health, and perceptions of needs, risks, stressors, satisfaction and preferences, for example (17). These may include staff surveys, inspections, policy audits or small focus group discussions, which are particularly relevant for small businesses (17).

Suggested opportunities for baseline data collation, or collection, include (1, 10, 17):

- Demographic characteristics of workforce;
- Sick leave, injury, illness, short- and long-term disability;
- OHS reports, incidents, trends;
- Long-term illnesses, return-to-work management and Employee Assistance Provider (EAP) access;
- Workplace inspection data, hazard and risk identification, including environmental and organisational exposures;
- Staff turnover;
- Productivity and performance;
- Union engagement and/or grievances;
- Audit of policies pertaining to safety, health, well-being;

- Workers' individual resources (health behaviours, health screening, resilience, mental health, workability, job satisfaction);
- Worker perceptions of psychosocial stressors;
- Worker preferences and needs for health and safety intervention.

There is consensus that the "Assess" stage should be informed by the socio-ecological concepts informing integrated approaches (4). All possible risks to worker health, safety, well-being and productivity should be considered for assessment of environmental, organisational, and individual work and non-work factors. This comprehensive information can then inform the subsequent stages of implementation.

Step 4: Prioritise

Organisational goals are identified via the assessment stage, and priorities are based on both presenting health and safety risks, or problems, and the 'future vision' of the organisation (1, 9).

It is recommended that a fundamental priority is the amelioration of immediate workplace hazards (62). This is placed within a broader set of priorities, about which the following decision tools are suggested (1, 17, 62):

- Consider some early gains – implementing programs shown to be effective, with ready implementation to promote engagement and participation;
- Consider risk to workers – severity, probability, and the cost of not addressing a risk;
- Identify priorities that are valued by the staff goals, needs and preferences identified in Step 3;
- Consider available resources, and cost-benefit information.

Several outcomes can be targeted simultaneously, with modest programs initiated as part of a broader program. The goal of integrated approaches is to maximize the organisational capacity not only to support healthy behaviours, but also to reduce environmental, occupational and psychosocial risk. Longer-term organisational change may therefore be identified as a priority to sustain and institutionalise the shorter-term goals (62).

Step 5: Plan

There are two common principles in the guideline literature under-pinning the planning of integrated approaches – integrated domains of intervention (1,17,18), and integrated systems of delivery (1, 17, 18)(10, 18, 23, 62, 63, 66)

The first principle refers to the *content* of the planned activities. The planning of activities within an integrated approach is informed by the recognition that any health or safety goal is likely achieved by action at multiple levels, targeting a range of interacting individual, organisational and environmental influences on the desired outcome (1, 4, 14). For example, Burton et al. suggest that a 'physical problem' such the unsafe use of machinery is likely a result of the machinery itself (environmental factor), *and* an outcome of high workload, poor communication, productivity pressures, poor processes or inadequate training (psychosocial and organisational factors) (1). Thus, multiple levels of action (e.g.: training, installing safety guards, revised processes or policies, task variation) are to be considered in planning to address any single risk to worker health or safety. Also important is the consideration of non-work factors, such as work-family conflict, under-taking further study or training, caring responsibilities (1). These can also be addressed at the organisational (eg. family-friendly

policies) and individual (stress management, workload management) levels. The complementary set of skills shared by OHS and HP is noted here: OHS practitioners focus on the development of safe environments (via policy, environment change); HP practitioners are expert individual and organisational facilitators of behaviour change (5, 7, 62).

The second principle refers to the integration of the systems or organisational functions engaged in the *delivery* and evaluation of activities. This includes the integration of, or at least, the improved collaboration and communication between, OHS and health promotion and any other existing health-related functions. Optimally, this involves shared planning and decision-making, budgeting and resources, shared data, and shared evaluation and reporting mechanisms, in a move to one overall health and safety management system (4, 62).

Therefore, the project or program plan is recommended to include elements of the integrated content and integrated systems of implementation. A template for a project plan is as follows (1, 17), illustrated with an example adapted from Cunningham et al. (41):

- Objective (e.g.: to reduce musculoskeletal disorders (MSDs))
- Measures (baseline data, indicators of change or improvement over time)
- Accountability – EAB, integrated committee, representation from OHS and HR collaborating
- Timelines
- Budget, resourcing - shared between HR, OHS, other relevant departments
- Planned set of activities or steps, including (with examples):
 - Individual (staff training, health checks, subsidized exercise program)
 - Environmental (ergonomic design, ergonomic checks)
 - Organisational (policies, induction processes, communication about new policies, break-time length / frequency, increased task variation, training in safe manual handling, manager-training to improve return-to-work management)

This plan is likely to be suitable for a medium-large workplace; a small enterprise might devise a list of activities and initiative with timelines (1). High worker engagement at this stage is suggested to improve the likelihood of high participation during the implementation phase (18, 23, 62).

Step 6: Do

This stage is the implementation and conduct of the plan(s) devised in step 5. To supplement the actions and initiatives outlined in the plan, further suggestions for optimal implementation include (17, 18, 23, 62):

- Promote employer or senior management involvement, advocacy and participation;
- Retain an 'employee-centric' focus, and keep all activities onsite, during work hours where possible;
- Tailor and customize any pre-existing or vendor-supplied programs to the specific workplace, based on staff input;
- Develop an effective communication strategy to supplement organisational changes, events, new policies etc.;
- Embed accountability, responsibility and reporting into the plan.

Steps 7 and 8: Evaluate and Improve

Since evaluation and continual improvement are an integral part of the planning and implementation cycle, and are inter-related, these two steps are presented together (1). There are several goals and purposes of evaluating an integrated health program, policy or organisational intervention – for accountability, for decision-making by the integrated health management team or EAB, for the purpose of continual improvement and for longer-term monitoring, and for organisational information, including benchmarking against similar industries or organisations (1, 17, 18, 23, 60, 62).

Evaluation for accountability links the outcomes to the program objectives, and addresses the issue of program (or policy etc) effectiveness. Short- and longer-term goals and objectives should be set within the project plan where relevant, and the use of validated standardised tools to assess change or improvement in the planned program objectives is recommended, where available (18, 70). Benchmarking may also be relevant here: for some health outcomes, a stabilisation (rather than a reduction) in incidence might indicate 'improvement' when other organisations in the industry have reported an increased incidence in the desired outcome (1). It is established that any health program evaluation should track *processes* as well as program objectives or *outcomes*. These might include assessments of reach, program fidelity and participation, as well as program effectiveness. Assessing return on investment is also recommended, and might include consideration of the following outcomes: absenteeism, sick leave, employee turnover, health claims, medical costs, workers' compensation costs, staff turnover, employee opinion and satisfaction and employer of choice indicators (62). Other less tangible, but nonetheless relevant indicators might also be considered, including workplace culture and values, productivity and presenteeism, talent and performance management. Several well-established frameworks for the evaluation of occupational health interventions are available, including the PIPE metric (Penetration, Implementation, Participation, Effectiveness) (65, 71); and the NIOSH framework (70).

Several authors have identified gaps in the way in which health programs are typically evaluated that are particularly relevant to the evaluation of integrated approaches. Assessment of the following elements may highlight changes at the organisational and environmental level that might otherwise not be captured in evaluations of health or safety outcomes: psycho-social safety in the workplace; organisational health and safety climate; inter-personal interactions; intra-personal resources (resilience, coping etc) (6, 16).

Evaluation also informs decision-making by the integrated health team (EAB), as part of the on-going response and needs of the organisation. Evaluating an intervention provides further information about workers' needs, priorities, opportunities, participation and the relevance of the intervention. This in turn informs subsequent planning by the integrated health team. In this way evaluation informs continual improvement. Integration of data systems, if not already in action, is useful here, so that all relevant health-management information is mutually informative. Repeated, on-going evaluation of worker health needs, program outcomes and participation, for example, can also provide a 'monitoring' role within an organisation, tracking improvements or new health problems emerging over time as part of the organisational profile. It is also recommended that the results of the evaluation be shared with employers, employees and all relevant stakeholders (1, 62).

The framework and guideline review collates the relevant, expert literature pertaining to the implementation and evaluation of integrated approaches to worker health, safety and well-being. Central to integrated approaches is that they are tailored, context-based and planned with a high-level of consultation with the specific worksite and staff to ensure the relevance of the intervention. The guidelines presented here are intended as a framework for consideration of the relevant steps and processes, expertly informed by both practice and empirical evidence.

Chapter 4: Case Studies

In this chapter:

- **The purpose and method for the case studies are presented**
- **Individual case study analyses for the (n=6) cases are presented**
- **Enablers, challenges and benefits of integrated approaches are discussed**

In order to support and complement the systematic evidence review and framework and guideline review, a set of case studies was developed to illustrate the integration of health and well-being activities with current OHS practices in Victorian workplaces. The aim of the case studies was to provide concrete illustrations to describe integrated OHS and HP programs; understand facilitators and barriers to their implementation; and identify mechanisms of program evaluation as well as benefits for employers and employees.

Method

Case study methodology is usually considered a valuable tool for research projects at the preliminary stage because cases are often constructed to collect data in natural settings and when an in-depth understanding of 'the few' is preferred over a larger number with a more superficial focus (72). The use of this case study approach has drawn primarily from the works of Yin (73) to guide the research framework. Each workplace provided a bounded system, within which the integration of OHS and HP was examined.

The cases were exploratory by nature and focused on the implementation of integrated initiatives combining HP and OHS practices. For this purpose, a triangulation of data sources and investigators was used (73-75). Different sources of data were collected for each case and the findings were reviewed by a team of four researchers to reinforce the validity of the findings.

Sampling

Case studies were selected using a two-phase purposive sampling approach.

First, WorkSafe Victoria identified a 'shortlist' of twenty-two potential organisations which had been involved in the Healthy Workplace grants through the WorkHealth program. They were pre-identified as 'early adopters', demonstrating a high level of awareness and understanding of integrated approaches with evidence of integrated practice underway. To do this, a telephone screening tool was administered by the WorkHealth team to categorise workplaces according to their level of integration of OHS and HP activities.

Second, a scoring matrix was utilised by the Monash University research team to determine the level of integration of shortlisted organisations. Several aspects were considered to score the degree of integration, such as existing health and well-being activities/programs, articulation of those activities with the OHS requirements, organisational mechanisms of delivery, partnerships with external organisations and willingness to be further involved in a research study. The sampling included workplaces that showed a high score of integration of OHS and HP programs, while maintaining a good representativeness of diverse businesses. Monash University invited 15 organisations to participate in the research, of which six agreed to be involved. Organisations that opted not to participate after the formal invitation cited lack of time and worker capacity as the main reasons for refusal.

The final sample involved six organisations that already showed good-practice examples of integrated approaches and reflected a diversity of workplace based on size, industry and sector. The sample included four organisations from the private sector (2 large, 1 medium and 1 small) with a mix of white and blue-collar employees, as well as a large public administration workplace and a medium not-for-profit organisation.

Semi-structured interviews were conducted at each workplace using a detailed interview question guide (Appendix D). Representatives from senior management, occupational health & safety, and/or the human resources departments were interviewed. These staff had direct involvement in the management, design, implementation, and evaluation of worker health programs.

In parallel with the interviews, organisational documents were collected. Publicly-available documents were collected prior to the interviews to compile general data about the organisations. Additional internal documents were then requested after the interviews to support the interview data. Documents collected included:

- Public reporting (e.g. annual reports);
- Public communication materials (e.g. websites, leaflets, brochures);
- Internal reporting and documents (e.g. progress reports, terms of reference);
- Internal communication materials (e.g. intranet, posters);
- Training materials;
- Human resources and financial documents.

Ethics and data storage

Ethics approval was granted on 3rd September 2013 by the Monash University Human Research Ethics Committee (MUHREC, CF13/2336 – 2013001237). The data storage complies with Monash University regulations as outlined in the secure storage strategy in the ethics application. Data will be retained within the Global Health and Society Unit at Monash University for five years. Only the researchers will have access to the original data.

Data analysis

Interview transcripts and organisational documents were analysed according to the conceptual framework outlined for this research project (adapted from the National Institute for Occupational Safety and Health (NIOSH) and the SafeWell Practice Guidelines (17, 18)). Five analysis criteria below served as references to interpret the case study findings:

Criterion 1. Integrated domains of intervention and targeted outcomes.

Criterion 2. System integration.

Criterion 3. People engagement.

Criterion 4. Clear planning and resources allocated.

Criterion 5. Program evaluation and continual improvement.

The analysis aimed to identify best-practice examples, and cases were categorised according to their level of integration (medium to full integration). Medium integration refers to an integrated system of delivery, but targeting either organisational changes or individual behaviours; full integration relates to programs using integrated systems of delivery (OHS and health promotion) and targeting both individual and organisational changes. Identified enablers and barriers were also highlighted as part of lessons learnt. Finally, focus was given to the benefits perceived and experienced by these organisations.

Individual Case Study analysis

For each case study, background information is provided about the organisation and its workforce, as well as the context in which the integrated approach has been initiated. The level of integration of the case is then presented using the five criteria of the conceptual framework. Finally, main enablers and challenges and the outcomes seen by the organisations are summarised.

Case Study 1. *ConnectEast* – High integration

ConnectEast operates and maintains Melbourne’s tollway connecting the eastern and south-eastern suburbs. The organisation, which started its activities in June 2008, operates 24 hours a day, seven days a week over multiple sites. *ConnectEast* employs 210 people, 60 of whom are based at the headquarters and 150 who work at call centres. The composition of the workforce is diverse in terms of status (56% full-time, 25% part-time and 19% casual), types of job role (customer service, administration, professional/technical, management) and location (headquarters and call centres). Overall, staff turnover is low, with one out of two employees having worked at the organisation since the construction of the road commenced in 2005.

The organisational commitment to employee health is reflected in the Safety, Health and Well-being Policy, which states that ‘*ConnectEast* is committed to providing a safe, healthy and supportive workplace’ and emphasises ‘team work and relationships’ as a guiding principle to achieve employee health and well-being.

In 2008, the HR manager, who had previous experience in employee health and well-being, started a health and well-being program at *ConnectEast*. The program was initially developed within the OHS unit and evolved to a more integrated mechanism with the establishment of a HR, Risk & Safety Team. *Case 1* has been a finalist in the last two years in the Australian HR Awards in the category of Best Health and Well-being Strategy. The approach is extremely pro-active and built on a strong safety culture.

The organisation presents all characteristics of high integration of worker health through their integrated system of delivery, targeting both individual and organisational outcomes.

Criterion 1. Domains of intervention and targeted outcomes

Rather than specific targeted outcomes, the Safety, Health and Well-being Policy contains general aims. It communicates the importance of promoting a healthy workforce, maintaining a safe system of work and proactively supporting the physical and emotional well-being of the employees. Both individual and organisational actions are considered.

“We are creating a culture in which our employees can flourish, enjoy their work and develop their full potential. By doing this, we aim to be recognised as a preferred employer by both existing and potential employees.”

ConnectEast Website

The program largely focuses on mental and physical health and well-being. The identification of domains of intervention is driven by the HR, Risk & Safety Manager in consultation with the staff through a participatory process. A health risk assessment tool is used to detect relevant health issues that can have a direct impact on the quality of work of employees. The different health and well-being activities implemented at *ConnectEast* include:

- Monthly health and well-being activities: 10 activities per year, run during working hours and usually lasting no more than 10 minutes to fit the nature of the business;
- Employee Assistance Program: open to family members and valid three months after end of contract;
- Workplace safety program: OHS induction, risk assessments, workplace inspections.
- External presentations/seminars: guest speakers;
- Community volunteering/fundraising: time-off scheduled – 1 day given for a full-time contract;
- Fresh fruit in the workplace 4 days a week: for all employees, including contractors;
- Social Club: entirely run by the employees and extended to the sub-contractor staff;
- Health assessment: online health risk assessment (HRA);

- Employee benefits and discounts;
- Flexible working arrangements: part-time, remote access work, job share, time off in lieu, 48/52 leave, flexible working hours;
- Sponsored recreational activities: fitness clubs or dance classes;
- Onsite cafe subsidized by *ConnectEast* to provide affordable healthy food for employees.

Criterion 2. System integration

The Safety, Health and Well-being Strategy includes information about both OHS policy and employee health and well-being. To ensure the high visibility and promotion of the strategy, various mediums of communication are used. While general information is circulated via emails, notice boards and posters, key points are discussed in department and staff meetings. Furthermore, the Managing Director’s “Town Hall meetings” offer an opportunity every quarter to brainstorm with small groups of staff.

“Promote your program and celebrate successes”.
ConnectEast

The OHS Committee comprises employee and management representatives from each department and *ConnectEast* sub-contracting company. The Committee is the primary forum to raise and discuss any relevant matters. As a member of this Committee, the HR, Risk & Safety team is responsible for planning and developing the corporate strategy dealing both with OHS and health and well-being issues.

Criterion 3. People engagement

Responsibilities for the implementation of the Safety, Health and Well-being Strategy are clearly conveyed in policy documents and shared between managers and employees. Managers actively encourage employees to take part in programs and activities offered, and to provide input and feedback. Furthermore, individual performance management plans reinforce these key messages by setting safety indicators. However, employees are ultimately responsible for their own health and well-being at work.

“Being healthy should be everyone’s priority”.
ConnectEast

Therefore, participation in health and well-being activities is voluntary, and different mechanisms are used to encourage staff engagement. This includes a reward system, inclusion of employee input into strategy planning, and regular informal opportunities to engage in discussion with employees on current or future activities. More importantly, access to information is greatly facilitated by a program portal on the company intranet which gives details about all health and well-being activities, including online booking systems, online health tools (HRA, health calculators, exercise video library) and materials (relevant handouts, recipe database, self-awareness quiz).

In addition to clear responsibilities and strong communication, the corporate culture plays a key role in supporting people engagement. Integrated into the core business, the activities related to safety, health and well-being are considered a part of all job roles and not as an additional workload.

Criterion 4. Planning and resources allocated

The planning process has evolved from a management leadership structure to a participatory process, where employee input is taken into account. Programs are decided yearly and activities are implemented from February to November. Identification and planning come together with an annual evaluation mechanism and appropriate human and financial resources have been allocated.

The HR, Risk & Safety Department is in charge of the strategy. The team of five staff brings the necessary expertise to deal with all issues related to employees, such as recruitment, training, payroll/employee benefits, employee well-being and OHS, organisational risk management, insurance and internal audit. To support them, external service providers are contracted, ensuring professional delivery of specific activities such as the EAP.

Financial resources are not a constraint for the implementation of *ConnectEast's* integrated approach. A healthy budget for training, staff amenities and health and well-being programs is allocated every year and approved by the Board, based on a program proposal submitted by the HR, Risk & Safety team. The organisation considers it essential to invest in a healthy workplace as part of its business strategy. Considering the high standards and important financial penalties that exist in the customer service industry, a motivated and healthy workforce is seen as cost-effective. As an illustration, to date the dedicated budget has increased year on year.

Criterion 5. Program evaluation and improvement

Every November, the health and well-being activity schedule is assessed and reviewed for the next year, and approved in December for implementation the following February. A review of participation rates for past activities is conducted, in conjunction with the inputs given by the OHS Committee and the external service providers in their reports. The draft activity schedule is prepared by the HR, Risk & Safety team and presented to the OHS Committee members who then consult with employees across departments. The document is then finalised based on feedback and circulated in January on the company intranet.

The staff engagement survey is used to determine the success of health and well-being activities. Other indicators for program success are absenteeism rate, attrition rate, employee engagement survey, sick rate, participation level in the activities and safety indicators. Results are then benchmarked against similar statistics in the call centre industry.

The organisation considers that an integrated approach to worker health contributes to an increase in employee self-esteem and overall job satisfaction that translate into better staff retention. Although the return on investment is not directly calculated, the organisation believes that an integrated approach is a strong contributing factor to improved employee safety and health. For the year 2013, it was considered there was:

- \$176k cost benefit to the company due to a significantly reduced number of sick days (less than 50% of the national average).
- Low attrition rate (1.4% for the corporate office, 17.8% for the contact centre, 1.3% for the sub-contractor).
- Strong safety outcomes (0 lost-time injuries since December 2009 and 0 medically-treated injuries since May 2011).

Enablers

- Strong management commitment translated into budget and resource allocation, clear policy and strong program visibility
- Organisational history and culture (“be culturally accepted”)
- Employee buy-in (participatory approach)

Challenges

- Diverse workforce (different statuses, job roles and locations)
- Inclusion of external staff (sub-contractor)
- Operating hours (24/7)

Perceived outcomes

- Increased self-esteem and overall satisfaction ⇒ Low turnover and increased staff retention
- Strong safety outcomes
- Low attrition rate
- Cost benefit

Case Study 2. *Stawell Gold Mines* – Medium integration

Located in the Northern Grampians Shire just 2km from a rural township, *Stawell Gold Mines* has operated underground mining activities for over 30 years, contributing to the local economic development of about 6,500 inhabitants. Operations are run throughout the year, 24 hours a day, and seven days a week.

Since 1981, *Stawell Gold Mines* has experienced nine successive owners, including three new owners in the last two and a half years. Today, *Stawell Gold Mines* is part of large foreign company that operates mines in the Northern Territory and the state of Victoria. In May 2012, a number of redundancies occurred due to the softening of gold prices and the acquisition of the mine by the current owner. The organisation continues to face uncertainties about its future.

Currently 350 people work at the mine on the surface and underground. Depending on shift and recovery days, there are approximately 90 people onsite at any one time. The expertise of staff is diverse and involves various sectors such as metallurgy, geology, electricity, environment, engineering, and administration. Most of the workers are locals and have been employed at the mine for more than 5 years (26% between 6-10 years). The workforce consists mainly of males aged between the ages of 35 and 54 years.

“This is when you start to think about your staff as people and not only as employees, when the two areas of OHS and Well-being are merging.”

Stawell Gold Mines

The organisation’s health and well-being approach was initiated in the difficult context of a redundancy program, and the possible closure of the mine has been high on the agenda for many years. The recent redundancies of a large group of employees has created a high level of anxiety, which led *Stawell Gold Mines* to consider appropriate strategies to enable staff to better cope with job uncertainty and the associated stress factors. The HR manager used the WorkHealth Healthy Workplaces Grant as an opportunity to initiate a more structured approach to employee mental health and well-being.

Despite a very uncertain working environment, the organisation has put in place a foundation for a more articulated approach to health promotion and OHS. This is still in the early stages of implementation and no evaluation has been conducted to date. Activities are focussed on both the individual and organisational level in the approach; however, the system of delivery is not yet formally integrated. Therefore, *Stawell Gold Mines* has been ranked as having a medium level of integration.

Criterion 1. Domains of intervention and targeted outcomes

An EAP and biennial health checks were in place and managed by the HR manager at the organisation before it received a Healthy Workplace Grant. The OHS department also provided training and information sessions. More recently, a “people transition plan” was introduced as part of the redundancy program under the auspices of the HR manager, and a careers day was organised for staff to explore other employment opportunities.

Within the health and well-being policy, new domains of intervention have been identified and formulated by *Stawell Gold Mines*. At the time of the research study, this document was still in draft form and should be finalised at the end of 2013 with the help of external consultants. The objectives give priority to programs targeting physical activity, healthy food, smoking and mental health, with particular focus on mental health. The goals target both the workplace (healthy environment and culture) and the individual (increased knowledge, awareness and participation).

The activity schedule will be identified and formulated in conjunction with an external service provider which will implement a series of activities from November to December 2013. *Stawell Gold Mines* then plans to establish an evaluation strategy to measure stress and anxiety levels of staff onsite and to manage them through the mine closure and employee transition program.

Criterion 2. System integration

There is no formal mechanism for communication and consultation between the HR and OHS managers. However, the two areas are considered to be mutually supportive and the strong informal relationship between the two managers has greatly contributed to a more collaborative effort. Due to the technical issues of the mine taking more and more of the OHS manager's time, the HR manager has shared the OHS responsibilities. As a result, the system of delivery of OHS and health promotion is partially integrated, existing within one job role.

The Healthy Workplace Grant has served as an opportunity for *Stawell Gold Mines* to introduce a health and well-being approach within the organisation, broadening the scope of the OHS strategy. Combined with the redundancy program, the grant has led the organisation to better formalise their health and well-being activities and translate these into their corporate objectives.

Interestingly, the current owner of the company, as a larger organisation, has a well-integrated approach with the adoption of a workplace health and safety policy that encompasses both OHS and well-being. References are made to key criteria of integration, such as the promotion of healthy lifestyles, the importance of communication and consultation with all staff, the establishment of relevant and measurable KPIs, and compliance with legislation. Unfortunately, *Stawell Gold Mines* does not benefit from this structure.

Criterion 3. People engagement

Considering the early stages of implementation and the special circumstances of *Stawell Gold Mines*, employee participation in the planning of the health and well-being program has not been active. Different levels of management have been formally consulted, but it is expected that employees will be engaged more actively when the strategy is finalised.

The OHS management strategy, already in place, focuses on engaging staff in their safety and well-being as individuals and members of a team. Through this system, ways are found to actively engage the workers, rather than applying rules and regulations. In addition to regular meetings between the Health & Safety representatives and the workers, the OHS Committee is the main pathway for engaging the organisation's workforce and linking the management with worker representatives. These existing mechanisms have created a state of mind that should support the implementation of an integrated approach in the future.

Criterion 4. Planning and resources allocated

To structure the integrated approach and to plan an activity schedule, *Stawell Gold Mines* will use the services of an external provider for two months (funded under the Healthy Workplace Grant). An online survey will be utilised to measure workplace well-being and assess the needs of employees. Based on the results, topics will be defined for the employee and management training sessions. In parallel, the health and well-being draft

policy will be reviewed and some recommendations will be made by the consultants to *Stawell Gold Mines* management.

Due to the ongoing possibility of the mine's closure, the organisation is not developing a long-term plan. Their approach is therefore more reactive than proactive.

Enablers

- A traumatic event as a trigger
- Human contacts – Be one team
- Strong safety culture

Challenges

- Redundancy context – social tension
- Possible business closure
- Employee and manager time constraints

Perceived outcomes

- Increased communication amongst managers

Case Study 3. *Prima Furniture* – Medium integration

Prima Furniture is a division of a large design and manufacturing group, Schiavello, which operates from twelve offices and four manufacturing plants, and employs more than 1,300 people in Australia. As a family business established in 1966, the group pays great attention to its employees, recognising that “productivity and staff satisfaction can be among an organisation’s greatest assets”.

Prima Furniture employs a total of 102 employees, predominantly men. The workforce is divided into blue- and white-collar employees, but most of the workers (75%) work in the factory while the others are located separately in an office that overlooks the factory area. The majority of staff are employed full-time and have been working for the organisation for at least 5 years.

The health and well-being program was initiated following a team-building weekend in 2012. During the weekend, the workplace psychologist delivered a presentation on stress management and an accredited trainer spoke about the importance of physical health, nutrition and well-being. This increased awareness about employee health and well-being. The momentum initiated from this weekend was then sustained by the General Manager, who decided to set up a well-being program, branded ProLife (“Proactive, Resilience, Overcome obstacles, Longevity, Inspire, Fitness, Enjoyment”). Within a year, the organisation has made great achievements in the planning and implementation of this program. However, given that the program is still in the pilot stage and access is limited to a small number of employees, the level of integration for *Prima Furniture* has been ranked as medium.

Criterion 1. Domains of intervention and targeted outcomes

The objective of ProLife is “to encourage an active lifestyle and improve well-being by awareness through group discussions events and activities”.

More specifically, the outcomes are expected to contribute to reducing staff absenteeism and workplace stress and creating a more positive working environment. Reduction of stress related injuries is also targeted.

In 2013, the program focused on physical activities, mainly outdoor events (fun runs, mountain bike riding, lifesaving experience), and healthy food (cooking class, cooking recipe exchange). Activities have also included personal health development as well as organisational changes through the provision of facilities (stretching space) and equipment (mattresses, fit balls).

“The family’s culture -our culture- is about ethics, about the way we treat and respect clients, the way we treat our own people.”
Schiavello Group Website

Criterion 2. System integration

The General Manager (GM) is extremely engaged in and committed to the program, providing strong leadership for its development. To face growing tasks, a committee was set up in February 2013 comprising three staff (including the GM), and involving representatives from every level of management. Although they are at the initial stage of developing a strategy and structuring the activities, they are aware that “it’s important to have it sustainable and long-term”.

The committee uses visual supports like notice boards and leaflets, as well as individual emails to communicate information about the program. The toolbox meetings, which are

short safety talks on specific subject matter, are also a great place to obtain feedback from the employees and to inform them of new developments in the program.

At the Group level, *Prima Furniture* communicates the development of the program to other managers and promotes its activities through the company intranet, reaching over 1000 employees. The initiative is still new but is slowly gaining the attention from the Group, which is keen to learn from this experience so that it can consider developing a similar approach in the future.

Criterion 3. People engagement

A special effort has been made to engage staff in the program in an enjoyable manner. Competitions and challenges are organised, such as the 10,000 step challenge, which is now very popular among the staff. An activities calendar is also promoted and participation in activities is encouraged through prizes and incentives. At the start of the program, the participation rate was about 40%. Improving participation rates is recognised to be a long process that will take time before commitment from the majority of employees will be obtained.

The people engagement strategy reflects the progressive approach of the company, which prefers to start small, and grow step-by-step. For the time being, only employees from the office are involved, in order to better develop and structure the ProLife program. Managers from all departments (office and shopfloor) are engaged in the program and some have already started to introduce health and well-being topics in their toolbox meetings. A pilot activity has also just commenced on the factory floor, with the implementation of a stretching program.

Criterion 4. Planning and resources allocated

Human resources and time have been allocated to support the program development. Following the creation of the ProLife Committee, priority was given to enhance the knowledge and awareness of the team on health and well-being issues. Documents and guidelines were collected, mainly via the internet. Furthermore, support is currently provided by the local city council, which offers a range of services to businesses in the planning and implementation of their health and well-being programs. According to the General Manager, this has offered good opportunities for networking with other workplace managers and for sharing experiences.

In addition, *Prima Furniture* benefits from an in-house workplace psychologist and physiotherapist. Some external professionals (e.g. accredited trainers) have been contracted on an ad-hoc basis to improve employee health and well-being.

"We walk the talk."
Prima Furniture

In the first year of ProLife, planning was led by the GM and the activities were identified according to his guidance. In 2014, the process will be more structured and coordinated by the ProLife Committee to integrate lessons learnt from past experience. A budget will also be allocated to ensure the feasibility of the program implementation.

Criterion 5. Program evaluation and improvement

The company has adopted a step-by-step strategy to gradually engage their whole workforce. Still in the learning phase, the health and well-being initiative is considered as an extension of the OHS management system, which already offers strong mechanisms of identification,

consultation, communication and engagement across the organisation. The best way to link these two systems remains uncertain, since OHS is legislated and the responsibility of the employer, whilst workplace health and well-being engagement is a personal choice for staff.

Currently, there is no formal evaluation strategy in place for ProLife activities. However, the success of the program has been measured in different ways and it has shown some impacts:

- Activity charts ⇒ increased participation;
- Pedometer Step Challenge ⇒ good participation and increased walking activity;
- Healthy eating ⇒ increased healthy food options in the staff lunch room (visual measure);
- WorkSafe health checks ⇒ 75% participation.

Some lessons have also been learned that will help to improve their program, such as:

- One event per month is too much;
- Activities need to be implemented during working hours (ideally at lunch time);
- Outdoor programs are difficult to manage because of the weather.

The ProLife Committee intends to conduct a survey of previous participants to identify directions for next year and to better engage the staff in the future. Ideas have already emerged to have talks on skin cancer and women's health and to inform staff about what is happening in their community.

One of the biggest challenges for *Prima Furniture* will be to extend the program to the shopfloor.

Enablers

- Strong leadership
- Progressive and structured approach
- Supportive legal framework (inclusion of psychological safety criteria in OHS regulations)
- Introduction of the health & well-being component as part of the core business

Challenges

- Time constraints in a context of high pressure and tight work-timelines
- Continuous employee motivation and engagement
- Communication with diverse people (culture, age, educational background)

Perceived outcomes

- Healthier habits among the employees

Case Study 4. *Hoerbiger* – High integration

Hoerbiger belongs to a large international group that operates in 133 locations across 54 countries with a global workforce of more than 6,700 people. Active in the pneumatics and hydraulic fields as well as the production of steel disks for passenger car automatic transmissions and friction linings for power shift transmissions, the *Hoerbiger Group* has developed strong expertise in compressor valve development and production (patents granted). The corporate values give high importance to the employees as a “hallmark of *Hoerbiger’s* success” and providing the group “with a distinctive profile”.

In Australia, the company has a small structure of 30 employees, located mostly in Melbourne, with a service shop in Brisbane and a sales representative in each state. The business is challenged by working across several locations where staff have a diversity of job roles (office and manual) and ages (junior and senior).

The current Managing Director (MD), who joined the company a year ago, restructured the delivery of the OHS strategy, promulgating its importance within the business. Safety became the primary agenda item at bimonthly management meetings. Having a strong background in safety, the MD utilised this knowledge in his new position, resulting in the formulation of a Health and Well-being Policy in May 2013.

Despite a very short period of implementation, *Hoerbiger* presents the characteristics of a highly integrated approach.

“We will have something solid in 10-15 years, it will become the norm.”
Hoerbiger

Criterion 1. Domains of intervention and targeted outcomes

The objectives of the H&W policy encompass both individual and organisational changes:

- *“To encourage workers to be more physically active by making provisions in the workplace for activity opportunities (including reducing sitting time where relevant and practical).”*
- *To provide healthy eating choices in the workplace through addressing healthy physical settings, such as food storage and preparation; food access and supply; and education.*
- *To promote a smoke free workplace environment and support workers to quit smoking*
- *To promote worker social and emotional well-being through workplace practices and policies*
- *To increase worker knowledge and awareness around key health topics, including the risks of alcohol consumption.”*

Health and well-being activities have been focussed on physical activity, healthy food and mental health promotion. In 2013, a series of training sessions was provided around the themes of stress management, emotional intelligence and energy boosting. Fruit and vegetable baskets were offered to head office staff every Friday and a pedometer challenge was organised, involving all Australian staff and creating a fun and competitive atmosphere which included staff across business areas in the organisation.

Beyond the objective of creating a healthy workplace, a socially responsible approach is also targeted, taking into account the communities where *Hoerbiger* operates. This is done occasionally via donation to charity organisations of the employees’ choice.

Criterion 2. System integration

The health and well-being policy gives responsibility to the managers to promote and implement activities. Workers are encouraged to consider this policy in the accomplishment of their work-related duties, and to “support and contribute to *Hoerbiger’s* aim of providing a safe, healthy and supportive environment for all workers”.

Until recently, OHS and health and well-being were run as two distinct approaches. The OHS committee comprised senior staff, whilst the Well-being Committee included younger staff with less than 5 years’ work experience. In April 2013, these two groups were merged into one body with a total of six representatives (including staff from Queensland and New Zealand). The Managing Director actively supports the new Health, Safety and Well-being (HSW) Committee, but has given responsibility for it to the employees.

Criterion 3. People engagement

Employee participation in health and well-being activities is strongly encouraged. Emails, flyers and incentives are used as the main communication tools. The participation rate overall has been good (approximately 80%). Employee engagement in the planning of health and well-being activities remains a challenge however, as there is a perceived risk that creating high expectations of what can be delivered will lead to possible frustrations. Therefore, this role is currently held by the HSW Committee, with informal mechanisms of consultation with the rest of the staff.

Criterion 4. Planning and resources allocated

Human resources have been made available through the creation of the HSW Committee and the inclusion of related tasks as part of the job roles of the Committee members. Their responsibilities and duties are clearly formulated into objectives. Covering both OHS and health promotion, these include for example a number of work-related injuries or well-being events to be organised..

Activities were started by the Committee with little structure and regularity. However, the Committee is now trying to organise four events per quarter as the program gains momentum.

“If people want to do something, whether good or not, just let them do it.”

Hoerbiger

In addition to the Healthy Workplace Grant received through the WorkHealth program, the organisation had already planned a small budget to support the HSW Committee and its activities. To illustrate management’s commitment, the budget for 2014 has been doubled from last year.

Criterion 5. Program evaluation and improvement

The H&W Policy will be reviewed annually. Despite the fact that it is too early to measure the impacts of such an approach, some effects are already visible. The integration of OHS and well-being has massively increased the communication within the organisation between administrative and shop-floor employees, as well as interstate. Staff morale has also been raised, creating a positive energy in the workplace. According to management, there is no doubt that the health and well-being activities offered will boost the organisation’s production, increase staff retention and decrease the amount of sick leave taken by staff.

In the future, the effectiveness of the policy will be assessed through “feedback from workers, the Health and Well-being Committee (if applicable), and management. This review will determine if objectives have been met and to identify barriers and enablers to ongoing policy implementation”. Other indicators of measurement for evaluation are still to be identified.

As a small enterprise, *Hoerbiger* has few human resources to rely on for improving and strengthening its integrated approach. The lack of knowledge and awareness among employees involved in the HSW Committee could be usefully addressed with some short training programs or presentations delivered by the regulatory agency, instead of additional written guidelines and tools.

Enablers

- Employee ownership of the program
- Regularity of activity frequency

Challenges

- Diverse workforce (job roles and ages)
- Inclusion of a small number of staff dispersed in different locations
- Age-appropriate activities for all staff

Perceived Outcomes

- Increased communication across the organisation between business groups
- Improved staff morale

Case Study 5. *OZChild* – High integration

As an independent welfare organisation, *OZChild* has a long history of care provision in Victoria. Since 1851, they have developed a range of services to improve the quality of life and the future opportunities for children, especially those who are disadvantaged or at risk. With a holistic focus on children, key intervention areas include foster care, family services, disability and education.

OZChild operates throughout the Southern Metropolitan Region of Melbourne, with education and outreach services delivered across many parts of regional Victoria. As a result, business takes place across multiple sites in various formats (offices, service centres, clients' homes).

Employees are unified around values and beliefs about children's rights and child development, which constitute the identity of the organisation.

“Supporting a healthy and balanced workforce will flow onto supporting the work done with clients and will ensure greater satisfaction for not only worker, but the client as well.”

OZChild, Internal Report

Strongly supported by the current Chief Executive Officer of *OZChild*, good workplace culture is important by “developing a strong coordinated leadership model throughout the organisation, supporting continuous improvement and quality measures, ensuring reward and recognition systems, recognising strategic behaviour and encouraging recruitment and retention of good staff” as mentioned in the Corporate Strategy 2008-2015. Consistent with this statement, *OZChild* is described by its stakeholders as a passionate, resourceful, innovative and adaptive organisation. This has created a favourable environment for an integrated approach to worker health.

Among the 180 employees, 90% are women, with 70% of staff working in social work roles. Due to the nature of the job, there is a clear risk of burn-out that needs to be considered. In addition, most employees are casuals doing mainly on-site work.

A review of the organisational OHS policy in 2008 was the starting point for the introduction of well-being into the approach to staff health. To remedy an OHS piecemeal strategy, new systems and procedures were established. The role of the OHS Committee was refined through new terms of reference, and the HR department was rebranded “Workforce and Culture” to emphasise both the safety and health and well-being dimensions.

Since then, *OZChild* has slowly developed a highly integrated approach involving integrated mechanisms of delivery for the benefit of both employees and workplaces.

Criterion 1. Domains of intervention and targeted outcomes

By providing financial support, the Healthy Workplace grant has enabled the organisation to structure its integrated approach. Prior to the grant, health and well-being activities were infrequently conducted, involving training sessions and employee support programs. A flexible work arrangement policy and monthly fruit box were also offered. The WorkHealth grant allowed *OZChild* to develop a 3-month program (from February to April 2013) to outsource professional services in the areas of nutrition and healthy food.

At the same time, the Health and Well-being framework was formulated and became the key reference document to support staff's general physical and mental health, targeting both individual and organisational levels.

In 2014, new activities will be designed around four domains of intervention: financial well-being, mental well-being, physical health (healthy eating and physical fitness), and personal

development. Activities will be designed based on the results of a survey conducted recently to assess employee needs.

Criterion 2. System integration

To support the health and well-being program development, the policy framework clearly describes the roles and responsibilities of everyone (Executives, HR team, Health and Safety representatives, managers and individuals). While the executives take part in the establishment of strategic directions, the HR team is the central point of contact in policy coordination. Health and Safety representatives act as key local resource for activity implementation and provide updates through the OHS Committee. By promoting a healthy work place and encouraging good health and well-being amongst their team, managers are expected to actively support an integrated approach to implementation. They also have to identify local health and well-being priorities and associated initiatives. However, it is agreed that employees have ultimate responsibility for their own health and well-being.

The OHS Committee meets quarterly with a quorum of five members to determine the integrated approach to OHS and health and well-being. Involving representatives from all sites, the Committee is a good platform to share information and receive feedback from staff. It comprises managers active in other strategic group meetings, amplifying the program's resonance throughout the organisation.

Criterion 3. People engagement

OZChild is committed to an inclusive approach to staff engagement, despite the heterogeneity and dispersion of the workforce. To maximise participation, activities are usually organised in office branches instead of the head office, offering a more central and accessible location for everyone. In this set-up, the role of the local health and well-being representatives is essential. Acting as local leaders, they serve to communicate information, support the logistics onsite and motivate staff. Communication is by email or occasionally at staff days or training sessions.

The 2013 staff satisfaction survey was completed by only a fifth of staff, showing that people engagement is still an area needing development. Just under a half of the organisation's workforce participated, with around 80 participants in each activity. Because they conduct on-site visits and work fixed hours, casual staff are not involved. >Furthermore, casual staff usually work for multiple employers and do not have the same implications for the organisation as permanent employees. < I DO NOT UNDERSTAND THIS SENTENCE

Incentives and awards are not considered a viable solution to increased participation rates in activities. Managers motivate staff to participate in activities but do not participate themselves.

Criterion 4. Planning and resources allocated

To date, the HR Assistant Manager was charged to develop the integrated approach at *OZChild*. However, an additional staff member has joined to support the new policy direction.

Financial resources have had a direct impact on structuring the organisation's integrated approach. Prior to the WorkHealth grant, no specific budget was allocated to well-being activities. To continue the momentum initiated in 2013, a financial budget has been allocated for next year. The organisation is currently planning a cost-effective program based on

internet research. This has been identified as a long and time consuming process for the organisation.

As soon as the employee needs assessment and market survey are complete, planning for the program will be finalised.

Criterion 5. Program evaluation and improvement

Although no evaluation has been conducted, program monitoring is formulated in the policy framework as a series of indicators. These include: increased individual productivity, reduced staff turnover, staff feel valued, increased staff morale, satisfaction and motivation, increased ability to attract new employees, reduced sick leave and assessed level of organisational insurance risk. In addition to traditional HR statistical data, employee feedback forms are considered an important part of the evaluation, reflecting the overall level of satisfaction level.

"We are willing to establish a good program this year because when you have the foot in the door, it makes it then easier to include it in the future."

OZChild

Several positive impacts have already been observed in terms of physical activity (lunchtime walking groups, yoga classes and fitness groups) and mental health (positive mindset, openness to new ideas and initiatives).

The benefit of external providers is considered highly, as bringing professionalism and expertise to program quality. For this reason, scoping of external providers for 2014 is currently taking place. This may take the form of corporate discounts for selected fitness clubs, or information sessions delivered by professionals about superannuation.

The management is in favour of a 'small steps' strategy to develop a long-term integrated approach. The idea is to initiate a dynamic that will soon become part of the core activities and well established within the organisation.

Enablers

- Integration of the well-being activities as part of the on-going work
- Local leaders
- Clear allocated budget

Challenges

- Financial and human resource constraints
- Multiple small worksites geographically dispersed
- Involvement of casual employees

Perceived outcomes

- Increased physical activities
- Positive and open mindset

Case Study 6. *The Department of Justice* - High integration

In charge of justice-related services, *the Department of Justice (the department)* aims to ensure that all elements of the justice system are working efficiently and effectively. Its vision is for a safe, just, innovative and thriving Victoria. Having extensive service delivery responsibilities, *the department* is composed of nine portfolios that cover areas ranging from prison management to consumer information and court warrant enforcement. In addition, *the department* handles the development and implementation of a range of laws, policies and regulations in areas across the portfolio including gaming, racing and bushfire response.

The department oversees an extensive network of diverse worksites across Victoria. The overall structure is organised at three levels: state-wide, regional and local. The department is engaged in partnerships with more than 60 statutory entities and works with more than 90,000 volunteers. Employing directly more than 7,000 people, *the department's* workforce is characterised by a significant diversity of backgrounds and work types.

To comply with the requirements of the Occupational Health and Safety Act (2004), the system was reviewed and strengthened in 2005 to ensure a consultative process to discuss any health, safety and well-being issues relevant to the organisation. A formal system was then put in place across all departments and business units, introducing templates, procedures and practice standards. To support this new policy, the OHS Unit was created.

Following this, a "People and Culture" function was established in 2010 to deal with people management and staff relations. Comprising 100 employees across three portfolios, it includes Workplace Services, where the Safety and Well-being Unit is located (previously the OHS Unit). With the primary functions of promotion and information, People and Culture provides guidelines and resources to the entire organisation across all entities in Victoria. The implementation of health, safety and well-being activities is the responsibility of the Regional OHS committees.

The OHS Strategy 2011-2015 incorporates objectives targeting both individual and organisational changes in promoting physical and psychological health. The delivery system is well integrated in one system. The organisation describes its approach to worker health and well-being as "pro-active" and can be considered as highly integrated.

Criterion 1. Domains of intervention and targeted outcomes

The Safety & Well-being Unit provides a wide range of resources to regional committees and managers to support their OHS policy implementation. The primary goal of the OHS strategy is the "development of a proactive culture focussing on health and well-being as well as injury prevention". Five key priorities have been identified to form a comprehensive supporting program:

1. Leadership and accountability
2. Consultation and communication processes
3. Management of key OHS risks (physical and psychological)
4. Proactive programs on occupational health and well-being
5. Management of WorkCover claims and Return to Work

More specifically, the occupational health and well-being programs focus on strengthening proactive and reactive initiatives on psychological health through EAP, peer support, employee resilience and debriefing to ensure early intervention and management. Special attention is given to the use of EAP for workplaces with complex psychological health

challenges. At the state-wide level, programs like the Global Corporate Challenge and Health and Safety Week are encouraged. Finally, senior staff encourage and support healthy workplaces in the state-wide programs.

Resources are made available on the organisation's intranet in six categories: health at work, consultation and training, safety procedures, managing OHS risks, compliance and guidance, and WorkCover. Information about health at work includes:

- Existing services within the Employee Assistance Program;
- Ergonomic principles and workstation assessment tools;
- Workplace modifications;
- Being fit for work and managing fatigue;
- Indoor and outdoor work environment temperatures;
- Work health planning for returning after illness or injury;
- Prevention, intervention and response strategies to ensure good mental health and psychological well-being in workplaces, helping managers to identify individual or organisational symptoms;
- An online health library.

In addition, the unit's staff regularly visit the different worksites to provide direct and tailor-made recommendations.

A list of expected outcomes has been set for each of the OHS strategy priorities. Regarding the Proactive Programs on Occupational Health & Well-being priority, the following are mentioned:

- "Evidence of proactive programs to promote psychological health in region, program and site OHS Action Plans.
- Evidence of reduced psychological incidents where the EAP has been utilized.
- State- wide OHS Action Plans incorporate the proactive health and Well-being programs.
- Senior leaders discuss the healthy workplaces programs in their communication with staff.
- Senior leaders participate in the healthy workplaces programs."

*"Programs need to be flexible,
accessible and free to staff."
Department of Justice*

Criterion 2. System integration

Senior executive and management teams are responsible for health and safety leadership as part of their integrated approach to people management. The overall program development and implementation is managed by the Safety and Well-being Unit.

The Safety and Well-being Unit plays an important role in consulting with and providing guidelines to regional directors, managers, officers, executive services and other departments like learning and development. Comprising the Safety and Well-being manager, the nominee of the Secretary and nominees of all business divisions, the creation of a Safety and Well-being Governance Committee as a decision-making body has reinforced the impact of the strategy. In fact, this committee approves all programming and budgeting.

The implementation of programs falls under the responsibility of the Region and/or Program Committees that include both management and employee representatives and report to the

Region and/or Program Directors. They deal with all issues related to safety and well-being, ensuring a consultative process to create a positive health and safety culture in each workplace.

Criterion 3. People engagement

The Safety and Well-being Unit focuses on engaging and supporting directors and managers in the implementation of the safety and well-being policy. In addition to written communications (emails, newsletters, notices, etc.), on-site visits are an important part of the Unit's approach to engagement. This increased contact with and proximity to worksites familiarises all staff with the integrated approach, enhancing visibility so that it becomes part of 'normal' business. A calendar is provided with all forthcoming activities so that the region and/or program committees can easily include them in their own programs.

Communication with all staff is done occasionally by posting updates or articles on the Intranet on specific items, such as an event/campaign organised by the Safety and Well-being Unit. The Global Corporate Challenge is also used to engage employees at the planning level and this is considered a good way to involve the entire workforce, regardless of location or position.

Criterion 4. Planning and resources allocated

Comprising a small team of 11 employees, the Safety and Well-being Unit is mainly made up of OHS practitioners who have extended their expertise to well-being, mainly by attending related training programs or workshops following the introduction of the OHS Act in 2004. The size of the unit is small considering the complexity of the structure of the organisation. In terms of planning, the OHS Strategy 2011-2015 is the key reference document, which makes the objectives, expected outcomes and accountabilities for the health, safety and well-being strategy clear within the organisation. Under the umbrella of the Governance Committee, the Safety and Well-being Unit is in charge of the strategy at the central level, which means corporate communication, stakeholder involvement, the development of frameworks, systems, action plans, processes and tools, as well as the strengthening of specific programs and training. The implementation of the strategy is supported by senior staff on an on-going basis.

Financial resources are a constraint. An annual budget is allocated but the value of each activity has to be demonstrated to the Safety and Well-being Governance Committee. Quantifying and measuring the benefits of well-being activities is difficult, which makes this challenging.

"To promote a healthy and resilient workforce that embraces the needs from both physical and psychological health perspectives."

OHS Strategy

Criterion 5. Program evaluation and improvement

The OHS strategy is evaluated at the end of every year against a set of tangible and measurable expected outcomes listed for each priority area. Based on progress reports (including the achievement of OHS targets and key performance indicators), new or emerging priorities can be incorporated into the strategy.

To measure the impact of several programs, evaluation surveys are conducted using SurveyMonkey, but there is no systematic measurement of activity participation rates. Direct feedback from staff during on-site visits or meetings is also taken into account in addition to

internal reporting. The National Employee Attitude Survey is considered a valuable benchmarking tool, enabling the organisation to compare its results against the Victorian Public Service as a whole.

The formulation of specific and measurable indicators for well-being activities is considered challenging. Demonstrating direct cause and effect is difficult as many other exogenous factors are involved. The strategy may contribute to reduced staff turnover and absenteeism rates, but the organisation is unsure about what other indicators might be relevant to comprehensively assess their activities.

Enablers

- OHS Act of 2004 introducing psychological risks and safety
- Face-to-face communication

Challenges

- Measurement of the financial benefits of well-being programs
- Multiple sites
- Workforce diversity

Perceived benefits

- Increased communication across business groups and departments

Discussion

The aim of this research was to provide evidence to inform WorkSafe Victoria in the development and scaling of integrated approaches to worker health, safety and well-being across Victorian workplaces. The objectives of the research were to summarise evidence for the effectiveness of integrated approaches; to review guidelines for the implementation of integrated approaches; and to provide specific workplace examples currently active in Victoria.

The approach taken in this research has several strengths. The overall program of research utilised a mixed methods approach, ensuring a high degree of complementarity between the three research elements. The systematic review provided clear evidence that integrated approaches are effective; the framework review presented implementation guidelines, and the case studies illustrated the implementation of integrated approaches in practice in Victorian workplaces – including common enablers and barriers. Taken together, the three components give a comprehensive understanding of the health outcomes and implementation processes of integrated approaches, combining frameworks and practical cases.

Empirical support of integrated approaches

There were several notable findings from the evidence review. Overall, the evidence demonstrated the effectiveness of integrated approaches to worker health and safety outcomes. The search strategy was designed to identify studies reporting on integrated approaches, rather than any particular health outcomes. As a result, a broad range of health and safety outcomes were reported in the thirty-two papers included in the evidence review. There was consistent evidence that integrated interventions had a direct impact on smoking reduction (32, 38, 44, 56), prevention of musculoskeletal disorders (36, 40, 42), and diminution of stress and poor mental health (54, 58). Many of these outcomes were reported in studies of high quality, where the causal relationship can be considered to be robust. Mixed effectiveness, or little support for effectiveness, was found for improving diet and physical activity (29, 35, 38), and improving organisational safety climate (51, 52).

Notably, the findings indicated a consensus that integrated approaches are effective in accessing 'high-risk' workers, and those sectors of the workforce that are engaged in occupations associated with a high risk of accident or injury, with the least likelihood of engaging in health promotion. Integrated approaches show promising effectiveness for addressing these compounded risks in labourers, home-care workers, and construction industry apprentices (32, 35, 43, 44). It appears that engendering the trust of employees via the comprehensive provision of *safe* workplaces potentially enhances individual *health* participation and engagement, each mutually reinforcing the other (9, 24).

Furthermore, of the eight studies reporting on the cost-effectiveness of integrated interventions (36-38, 40, 46, 53, 76), all but one reported a favourable outcome (41). Variable assessments of reduced costs were utilised among the evaluations, including reduced worker-compensation costs, absenteeism, medical or health-care costs, and use of sick- or disability-leave.

Finally, the empirical evidence demonstrates that integrated approaches, which not only combine OHS and HP, but also specifically target organisational or environmental change as a mechanism for improving health and safety, convey measurable improvements to individual health, safety and well-being. This is the case across a range of intervention targets, in diverse occupational settings, including stress reduction (37, 58), reduction in

occupational injuries (40), improvement in nutrition (77), subjective ratings of health, well-being and job quality (39), and reduced mortality rates (57).

Implementation of integrated approaches in Victoria

Given the promising evidence base supporting integrated approaches, the findings from the case studies and the framework and guideline review provide a complementary set of criteria to inform the implementation of integrated approaches. The case studies offer a unique opportunity to investigate the recommendations from the framework and guideline review of programs currently active in Victorian workplaces. The case studies involve a diverse range of workplaces, each with a different impetus and capacity for the integration of organisational functions targeting worker health and safety. The six organisations vary in the degree to which “integration” has been accomplished, and each is at a different stage of the implementation cycle steps outlined in the WHO *Healthy Workplaces Framework* (Mobilize, Assemble, Assess, Prioritize, Plan, Do, Evaluate, Improve) (1).

Two common elements of the “Mobilise” and “Assemble” stages reported in the three research components are strong leadership and support from management for increased integration, and the formation of a specific “integrated committee” with representatives from OHS, human resources, and staff from a range of occupational levels to oversee planning and implementation. The active leadership, support and engagement of management were universally evident, highlighting the critical role of strong leadership to establish a supportive organisational culture. This leadership preceded the roll-out of integrated approaches, and was indeed the impetus for integration, and these organisations can be considered ‘early adopters’ of integrated approaches. However, as outlined in the framework and guideline review, the “Mobilise” stage may involve the role of an external stakeholder, such as a regulatory or recruiting organisation, establishing this leadership engagement and support where it does not yet exist. Leadership commitment is essential for the feasibility of the program(s) in these cases. In all of the workplaces studied, allocating budget, staffing and resources was a decision taken by management to demonstrate their commitment to health and safety to the workforce, but critically, to ensure the viability of the “integrated committee” and of any initiatives undertaken.

In four of the cases studied, a specific committee was established to integrate existing organisational functions responsible for an overall health management system. In other cases, this integration was still in progress, but improved collaboration, planning and communication between OHS on the one hand, and human resources on the other, were evident. *The department* is unique, as the centralised OHS committee had responsibility for providing resources and guidelines to regional managers, who then undertook the planning, prioritisation and conduct of health, safety and well-being programs tailored specifically to the needs of their workforce.

A common leverage point for all of the cases was their existing OHS system. The established mechanisms, processes and staffing in place to manage regulated OHS requirements were regarded as a practical foundation for the extension to a broader range of health and well-being activities. In four cases, the review of their internal OHS policies served as the starting point to include well-being elements in their strategies. In one case, the broadening of the OHS Act (2004) to include psychological safety provided a strong impetus for the organisation to focus on extending their existing OHS activities, integrating prevention, and broader well-being into their established activities. Two organisations mentioned the Healthy Workplace Grants through the WorkHealth program as providing specific incentives to pursue opportunities to integrate and extend their current programs. In these cases, these grants enabled the organisations to formalise their approaches and to purchase professional expertise from external providers.

Few of the cases had undertaken a comprehensive “Assess” phase. Rather, the “Prioritize” step was based on the decision-making of the management committee, the integrated health committee, or in the case of *Stawell Gold Mines*, following a particular event that was perceived by management as heightening employees’ risk of adverse mental health outcomes. Assessment of employee needs was conducted in two large organisations. *ConnectEast* conducted a participatory consultation process and provided health risk assessments to identify needs, and *OZChild* took guidance from a survey of their employees. Despite this, each organisation had recognised the importance of integrating organisational or environmental change with supporting the health behaviours of individual employees; a core principle of integrated approaches.

A range of programs and interventions were planned and in four cases actioned (“Plan” and “Do” steps), and these were not dissimilar to those most commonly identified in the evidence review – improving mental health, improving physical health and nutrition. Evidence review findings support the effectiveness of integrated management to improve mental health, promote well-being and prevent stress. Activities identified in Victorian workplaces included social activities, community participation and volunteering, seminars and education programs, the provision of a subsidised Employee Assistance Provider, and the development of policies aimed at ameliorating work-family or work-life conflict, via a suite of flexible working arrangements. While evidence review findings reported only mixed effects of interventions aimed at improving diet, nutrition and physical activity, these were popular early programs implemented by the organisations studied. Expert consensus, summarised in the framework and guideline review, makes the case that early gains – in participation, engagement, and program visibility – are a good foundation to establish momentum. It appears that workplaces are targeting some early, rapidly-adopted, accessible and low-cost initiatives (e.g.: fun runs, fitness classes, health checks, healthy food strategies) as feasible starting points, to continue the momentum introduced by WorkHealth programs, and enhance initial employee engagement. External service-providers were a common strategy used by the employers or management committees, most likely due to the competing workloads of those tasked with program planning and delivery. This was recommended in the framework and guideline review, particularly for small businesses, where external expert consultation could complement the existing OHS or health promotion skill-base. Further, this indicates a need for an accessible inventory or database of relevant service providers to be made available to employers.

A notable challenge across the case studies was the degree of staff participation and involvement in participation and planning which are recommended as critical to integrated approaches. There was some evidence of consultation and feedback from staff members at both planning and evaluation stages. However, several key informants identified that strengthening employee participation was difficult, a “work-in-progress”, or a target for improvement, in particular during the “Do” stage of program action. Identified barriers to staff involvement in health activities included a geographically dispersed, or predominantly off-site workforce, and casual and shift workers. Concerns about engaging these employees in the planning process were also mentioned, mainly because of the risk of increasing expectations that could not be met. Strategies to support staff engagement included the provision of incentives and rewards; a high-saturation communications strategy; holding activities during work-time, and in the case of *ConnectEast*, ensuring the health and safety activities were regarded as ‘core-business’, a part of every staff member’s workload. One organisation included safety indicators as part of the managers’ key performance indicators, as a means of strengthening managers’ support for staff to engage in health and safety activities.

The final steps, “Evaluate” and “Improve”, were also developing in the cases. There was a notable intention for program evaluation, but a need was identified: key informants were unsure about which indicators or tools, to use to assess program outcomes. In five of the six workplaces, little evaluation had occurred to date. Most had plans to evaluate or review their progress annually. *Prima Furniture* had plans to use their annual staff survey to reflect on

their programming and inform continuous improvement. *The department* structured its OHS strategy around five priorities and had identified appropriate key indicators, yet no comprehensive evaluation had occurred. *ConnectEast* reported the most established evaluation plan, one that included a high degree of data integration and benchmarking with industry norms. Given the early stages of implementation for most of the organisations studied, it is not surprising that the “Evaluate” and “Improve” strategies were emerging. Nonetheless, these steps are critical, particularly for organisations with fewer resources (including small to medium enterprises) which need to ensure efficient use of time and budget, plus opportunities to identify effective versus low-impact programs and strategies.

From the case studies, several critical enablers have been identified for the implementation of integrated approaches in Victorian workplaces. Strong leadership and management commitment, including specific resourcing of initiatives and a supportive workplace culture, were foundations in each setting. For most workplaces, building on established OHS infrastructure was a ready, practical entry-point to deriving a comprehensive health management system, extending initiatives to support a broader range of health and well-being targets. The use of external expertise to support program planning and delivery was also favoured. Nonetheless, several barriers were also reported. The difficulty of transferring activities across multiple, diverse, unique workforces within one organisation was noted. Further, even when leadership demonstrated financial commitment to the program, resource constraints were evident. Key informants reported a lack of time or staff to take on additional roles and the workload required to implement health and well-being programs. Financial constraints were reported, particularly outside the private sector; a lack of expertise was also noted. Finally, there was evidence of a knowledge gap in workplaces about the most appropriate tools and indicators to evaluate program effectiveness.

The literature and practical examples from the case studies focused predominantly on the integration of OHS and HP within organisations. However, other operational functions and strategies have been noted, at least theoretically, as important to comprehensive integration. Human resources in particular engage in the provision of employee benefits, within a context of broader organisational development (McLellan et al., 2012). The empirical evidence supports organisational change, but to date, mainly rests on the integration of OHS and HP functions. There was evidence that the psychosocial aspects of work are relevant to employee outcomes, suggesting that all employee benefits are of relevance to health and safety. The guideline review also supported organisational development as a goal. However, the case studies, in the main, focused their interventions on the integration of health promotion within their existing OHS infrastructure. It is plausible that organisations start with the immediate integration of these two roles, and then ultimately develop outwards to incorporate more comprehensive development across the organisation, including the provision of employee benefits and relevant policy changes. However, the case studies were observed perhaps too early in the implementation cycle to note these higher-level changes. Further research is likely to elucidate the enablers and barriers pertaining to the integration of HR and employee benefits into the overall health management system, including organisational development as a goal.

There are several limitations to the research. The search strategy for the evidence review focused on “integrated approaches” rather than particular occupational, environmental or health conditions per se. It may be that some studies of interventions using integrated approaches were missed in the electronic database search. The case study data collection, due to time constraints, was limited to managers and supervisors and did not include the collection of data from employees to assess employee views of program reach, congruence with their needs or any perceived benefits or outcomes of new workplace initiatives. Nonetheless, several recommendations arise from this research.

Conclusions

The evidence reviewed from the scientific literature supports the integration of OHS and health promotion as an approach to provide comprehensive health interventions and management to Victorian workplaces. Notably, these approaches demonstrate a promising return on investment, albeit in the short-term (e.g.1-2 years), against a range of cost indicators. As evidenced by the six case studies, integrated approaches to OHS and health promotion are underway in Victoria. The observed organisations, which are 'early adopters' of this approach, practise critical elements of the recommended guidelines in the expert literature. Nonetheless, several barriers and opportunities in the implementation process were noted.

Common elements of effective integrated approaches from all three research elements include:

- Strong leadership from management;
- Culture of care or culture of safety (more developed than culture of compliance);
- Significant organisational support for change;
- High worker participation and engagement;
- Building on existing mechanisms already in place to deliver OHS.

Barriers to integration and implementation are:

- Delivery to diverse workforces and worksites within single organisations;
- Limited time, expertise and financial resources;
- A lack of efficiency and knowledge about optimal evaluation and indicators of effectiveness.

External support was also noted, bringing an added value to their efforts. Specific recommendations for action include:

- Provision of reliable information and recommendations about relevant service providers;
- Access to "toolkits" for the implementation of integrated approaches, in particular, program monitoring and evaluation;
- Possibility of financial support;
- Stronger legal support via the inclusion in the OHS regulations of compliance against a broader range of integrated health indicators.

Implications and further research

The conclusions from the research highlight means by which to strengthen support for Victorian workplaces in developing their integrated approaches.

Findings from the research suggest that external support for the implementation of integrated approaches appear to be appreciated and welcomed by senior management. Due to time, resource or expertise constraints, most of the organisations were willing to obtain technical, financial or legal support to enhance their own capacities and to professionalise their program implementation.

To support this, a capacity building strategy should be developed to enhance leadership and support partnerships. An approach for each industry would most optimally maximise the knowledge and experience already in place, bringing together organisations of different size and location, but within the same industry constraints and benchmarking.

A capacity building strategy could be further investigated using different formats:

- Industry platforms to encourage further networking and partnerships;
- Training/awareness workshops for business leaders focusing on general knowledge about integrated approaches, interpersonal skills, strategic visioning, systems thinking, and organisational management;
- Provision of easily-accessible learning resources , eg: through a specific website;
- List of assessment tools for program evaluation; this will address the need identified in the case studies, and will support workplaces to evaluate process and content, and support continuous improvement

A focus on these three levels (industry, leaders and workplaces) is likely to strengthen the foundation for the further development and implementation of integrated approaches.

Given the commitment to rigorous evaluation and continuous improvement recommended in integrated approaches, building research and evaluation into the future implementation of integrated approaches in Victoria is recommended. Participatory action research is a relevant model for tracking both processes and outcomes from a range of perspectives (employer, organisation, stakeholders etc). This co-incident research will provide information about the models, systems and processes undertaken as new approaches to worker health are implemented in Victoria.

Findings from the research highlight that the benefits of integrated approaches are evident. This research has underlined the processes and mechanisms of implementation via established international frameworks, exemplified and illustrated by Victorian experiences. However, there remains a need to develop in-depth knowledge about the vertical and horizontal implementation processes within the organisation itself (e.g. structure, collaboration, working mechanisms) and between the organisation and external stakeholders. These include formal and informal networks, industry and government partnerships, unions and employee representatives. To address this, further in-depth analyses of Victorian workplaces would elucidate the full range of enablers and barriers in the implementation of integrated approaches.

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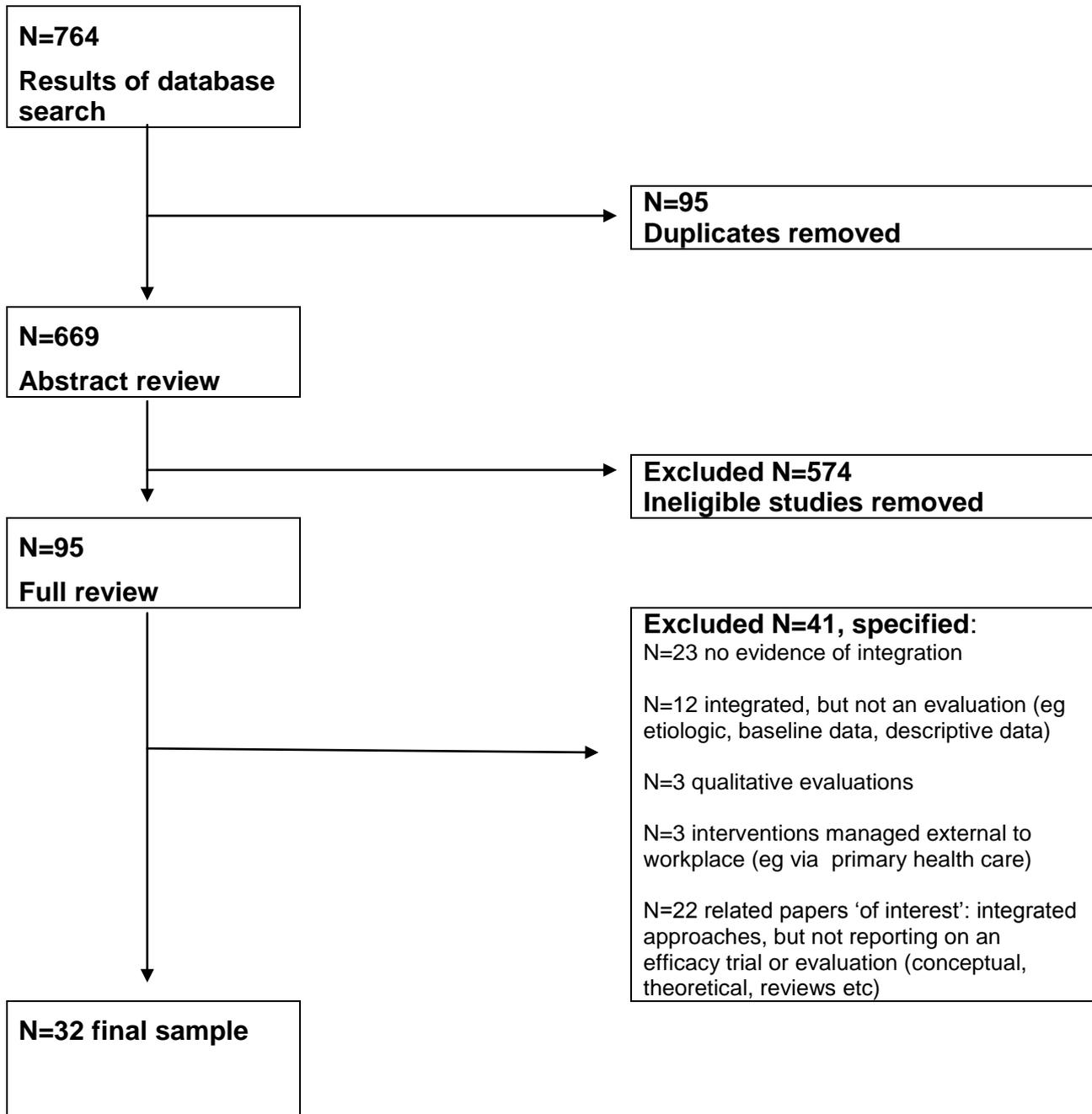
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Glossary

CSs	Case studies
EABs	Employee Advisory Boards
EAP	Employee Assistance Provision
HP	Health Promotion
HR	Human Resources
HRA	Health Risk Assessment
HRQoL	Health-Related Quality of Life
HSW	Health, Safety and Well-being
MSDs	Musculoskeletal Disorders
NIOSH	National Institute for Occupational Safety and Health
OHS	Occupational Health and Safety
RCTs	Randomized Controlled Trials
WB	Well-being

Appendix A - Evidence Review Protocol



Appendix B – Evidence Review Summary Tables

TABLE 1: Evidence from High-integration, high quality studies

Authors, Date, Country	Population, workplace type (industry, sector, size)	Study Aims; target(s) of intervention*	Intervention & program details: Type, dose, delivery, components	Integration evidence & rating	Evaluation design / type and rating of quality*	Outcomes assessed in paper	Effectiveness against targeted outcomes
Badii et al., 2006 Canada	Hospital (1 of 4) pilot site selected for delivery of PEARS. Program targets health care workers in a 352-bed hospital and main area trauma referral centre. Control site 263-bed comparable facility operated by same OHS management team	Effectiveness of integrated workplace program to reduce MSD's and impact of MSD's in health care workers.	<i>PEARS: Prevention and Early Action RTW.</i> Prevention (ergonomic assessments; workplace modification). Early identification and intervention (therapy; work accommodation during recovery; access to onsite physician). Rolling delivery; results are reported for first year	PEARS includes: safety, injury prevention and treatment, job & worksite modification & assessment; & RTW component. Delivered via multi-disciplinary team; managed under single administrator overseen by steering c'ttee with membership OHS, management and unions.	Two-step comparison to evaluate effectiveness: Three – years' historical data from intervention site compared with one year prospective data. Plus. Comparison with control site (4)	Incidence of all reported injuries; Incidence of reported Musculoskeletal Disorders (MSDs); Incidence of time-loss MSDs. Mean duration of MSDs time-loss.. Mean compensation and healthcare costs	No effect for incidence of all injuries (rate). Increased reporting of MSD's at intervention site. Increased time loss at intervention site. Reduced compensation and health care costs compared to historical data. Suggest overall effectiveness early id, time off and sooner RTW
Bergstrom et al., 2008 Sweden	N= 4 manufacturing worksites; vary in size 370-2000 employees; >70% blue collar grade; >80% male.	Evaluation of an occupational health intervention to improve lifestyle (exercise; smoking cessation); Health-Related Quality of Life (HRQoL); and reduce sick leave usage	Preventive intervention. Two initial courses (2-3 days) given to relevant OHS and HR personnel. Included follow-up, feedback and tailored intervention based on biannual survey of workforce.	Individual health, organisational & psychosocial factors targeted; Personnel included OHS clinician and individual work-groups. Work-group level feedback disseminated to address psychosocial climate; individual	Quasi-experimental design; included comparison with a “reference group” company delivered a reduced intervention, non- randomized. “Follow-up” data collected in final 3	Assessed at 10 – points, sub-analyses white v blue collar employees, Smoking reduction over study period, Proportion regularly exercising; HRQoL. Sick leave usage	Compared to reference (control) group: Reduction in smoking over time for 3 (of 4) sites; No change in exercise habits; 2 (of 4) companies improved HRQoL reported; 1 site reported

			Intervention supported by research team weekly contact. Delivered over three years.	health concerns screened by OHS clinician.	months of delivery. (4)		decreased sick leave
Goetzel et al. 2010 USA	12 worksites of chemical manufacturing company (9 intervention; 3 control), n=10 281 employees; 75% male; 44% professionals/managers	Evaluate effect of a two-year environmental intervention on prevalence of obesity	Multi-component intervention, two levels: Both levels (n=9 sites) include improved walking, catering choices, health coaching in workgroups, newsletters, incentives. Plus (n in 5 sites) specific management engagement: organisational goal setting; leadership training and accountability, goal setting rewards and recognition. 18 month period.	Integration of OHS, management and HP in implementing the intervention. Program targets individual health behaviour, organisational change, environmental change and organisational health climate	Quasi-experimental design; compared intervention with control sites (non-random assignment) (4)	Outcomes assessed: bio-metric indicators (weight, blood pressure, cholesterol, blood glucose, self-reported health behaviours – stress, nutrition, phys activity, smoking, alcohol, nutrition.	Intervention groups (both levels) maintained their weight; control group gained 1.3 pounds (0.2 BMI points). Reduced other risks across all biometric applications, but not sustained when site-level adjustments applied to analyses.

DeJoy et al 2012 USA	12 worksites of chemical manufacturing company (9 intervention; 3 control), n=10 281 employees; 75% male; 44% professionals/managers.	Process evaluation (implementation, fidelity) of environmental intervention to manage and reduce obesity (n=9 intervention sites only)	(As above)	(As above)	Process evaluation in intervention sites only; collected employee data; company records audit; environmental assessment; survey health coaches (4)	Environmental assessment of physical site. Health climate or organisation assessed using validated tool. Employee perception of program effectiveness; saturation	Mixed implementation fidelity across sites for each component. Environmental and organisational support increased across all intervention sites; more markedly for intense intervention arm. Employee health climate perceptions improved in both intervention arms.
LaMontagne et al., 2004 USA <i>Well-Works 2</i>	15 large manufacturing worksites across USA each between 400-2000 employees; 7 intervention sites and 7 control sites	<i>Well-Works 2</i> Integrated intervention designed to target worker, organisation and environment. This study reports on Well-Works effectiveness in improving OHS program content	(reported elsewhere; see Sorensen et al., 2002)	Addresses OHS and HP goals simultaneously, integrated program delivery. Integrated delivery (organisation, individual, physical environment)	Randomised controlled trial, worksite unit of intervention and evaluation. (5)	Assessed 4 'Essential Elements' of OHS program delivered at intervention v control sites. Management commitment & employee participation; Workplace analysis; Hazard prevention; training and education. Total OHS program scores also considered	Pattern of improvement all outcomes; significant improvement in intervention (v controls) in management commitment/employee participation.
Maes et al., 1998	3 sites in household goods manufacturing company – 1 experimental & 2 control sites. N=264 individual employees, n=134 experimental group; n=130 control.	Does an intervention offering both individual and organisational factors improve health behaviour, reduce health risks; reduce stress; improve work quality & reduce	Individual component (lifestyle & health education, participatory sessions 3 X week) Training for upper/mid management re social	Engages managers and staff Targets organisation, environmental and individual behaviour	Quasi-experimental pre- and post-test design, with control group.	Standardised assessments constructed the following effect variables: Lifestyle (e.g. smoking, sleep, exercise). Health risk (age, biophysical	Strongest effects on work/organisation of work rather than individual behaviour. No significant effect on lifestyles. Reduction in health risk for men at post-

Netherlands	57% male respondents.	absenteeism?	skills; change leadership Environmental change to support individual change (facilities; catering; health promotion messages/incentive) Screening identification of risks, targeted by a "wellness committee" comprised of management & staff employees, implementation and evaluation of change.	change Integrated implementation and management across whole of organisation	1,2,& 3 year follow-up (4)	markers). Stress reactions (depression, anxiety, somatisation, hostility; sleep). Working conditions (job control; ergonomic conditions; psychological demands). Absenteeism (% , 6 monthly periods).	test. No significant differences in stress reactions. Improvement in working conditions for intervention group, mainly via reduction in demands.8% reduction in absenteeism intervention group, cf 5% control.
Sorensen et al., 1996 USA (<i>WellWorks participation outcomes</i>)	24 worksites participating in <i>WellWorks</i> Project; eligible worksites were med-large 250-2500 employees; probable/known use of occupational carcinogen. Predominantly manufacturing industrial/chemical products; fire fighting, newspaper production. N=2578 participants in intervention included here.	Examining worker participation, and effects of participation in <i>WellWorks</i> intervention, a programme targeting blue collar workers in n=12 intervention sites	<i>WellWorks</i> cancer prevention project, aimed at health promotion and reducing exposure to occupational carcinogens. Integrated health protection and health protection targeting individual and behaviour change. 2 year duration.	Specific target is integration individual, environmental and organisational change to ameliorate risk, improve safety & health. Joint management of program by EAB comprised of staff and management	Worksite unit of randomization / analysis, 12 units in intervention included in this study to assess participation (4)	Assessed the following: participation in smoking cessation, nutrition and OHS activities; perception of employee reducing exposures to carcinogens influence on participation.	Women more likely to participate; labourers less likely to participate. Workers who perceived that employer reduced occupational exposure were more likely to participate in smoking cessation & nutrition activities
Sorensen et al., 1998	24 worksites participating in <i>WellWorks</i> Project; eligible worksites were	Effects of <i>Wellworks</i> cancer prevention intervention on dietary	<i>WellWorks</i> cancer prevention project, aimed at health promotion and	Specific target is integration individual, environmental and organisational change	Worksites matched into pairs, then one of each pair randomized	Assess effectiveness of intervention on dietary habits (fat intake; F&V), smoking;	Reduced fat intake irrespective of sex, occupation or exposure category.

USA <i>(WellWorks main results)</i>	med-large 250-2500 employees; probable/known use of occupational carcinogen. Predominantly manufacturing industrial/chemical products; fire fighting, newspaper production. 12 intervention; 12 control sites. N=2658 respondents included here.	habits & smoking	reducing exposure to occupational carcinogens. Integrated health promotion and health protection targeting individual and behaviour change. 2 year duration.	to ameliorate risk, improve safety & health. Joint management of program by EAB comprised of staff and management	to intervention. Random samples selected to complete baseline & post (2 years of intervention). (5)	Test intervention effects X occupational category; Test intervention effects X occupational exposure to hazards	Improved nutrition: fibre for labourers; F&V, particularly for white collar workers. Trend only for smoking reduction
Sorensen et al., 2002 USA <i>(WellWorks-2 main results)</i>	15 manufacturing worksites, mean = 740 employees/site; Probable chemical hazards. 66% male; 84% white; 70% post-school qualification.	Effects of <i>WellWorks-2</i> cancer prevention. Comparing HP only with HP-OHS integrated intervention to reduce cancer (smoking; F&V) risks, for total sample, and for blue-collar workers.	Intervention targeted worksite environment (policies re food, catering, smoking); safety (reduction hazards exposure); preventive approach in consultation with EAB. Individual behaviour change via range of interventions tailored via consultation with EAB; these included embedding in safety messages for HP-OHP arm.	Integration of OHS and HP in second arm required; EAB's managed the project with cross-organisational representation, including with OHS committees. Both intervention arms focused on health promotion at individual and org level. HP-OHS intervention involved environmental change to reduce hazard exposure.	RCT: Worksites randomly assigned to either HP-only (n=8) or HP-integrated with OHS (n=7). Comparison at post-intervention testing (5)	Individual employee unit of analysis. Smoking prevalence Quit rates X 'blue collar' (hourly wage earners) Changes in F&V consumption	Trends for overall smoking decrease in integrated intervention (non-significant). Quit rates doubled in hourly-wage earners in integrated arm cf those in HP-only arm. No effect on F&V consumption
Hunt et al., 2005 USA <i>(Wellworks-2)</i>	15 manufacturing worksites, mean = 740 employees/site; Probable chemical hazards. 66% male; 84% white; 70% post-school qualification.	Effects of <i>WellWorks-2</i> cancer prevention. Comparing HP only with HP-OHS integrated intervention to reduce cancer (smoking; F&V) risks, for total sample, and	(As above)	(As above)	(As above)	Worksite unit of analysis, n=15 included, compared HP with HP-OHS arm. No. of activities &	Mean participation & individual minutes of participation higher in HP-OHS arm cf HP only arm across all individual behaviour change & Wellworks intervention activities.

<i>Process Evaluation)</i>		for blue-collar workers.				reach of individual interventions	Odds of smoking cessation were not different between participants and non-participants (ie: likely workplace culture change contributed to effects)
Sorenson et al., 2005 USA <i>(Healthy Directions – main results)</i>	26 small business worksites from manufacturing sector, with 50-150 employees per site. Multi-ethnic workforce targeted specifically (66% sample born outside US). N=1740. 12 intervention sites, 14 minimal intervention sites (used as control group here).	Investigate effects of cancer-prevention intervention on health behaviour change; sub-group analyses by occupation status and ethnicity.	Intervention targeted individuals (workshops; events; self-assessments re nutrition / activity / OHS); managers (support for environmental change provided by research team; policy, events, environment (ergonomics; occupational health assessments); Minimal intervention group received smoking-cessation program. 18 month duration;	Integrated management – EAB's with membership from staff, management, health and safety representatives. Integrated intervention focused on health promotion and occupational health.	RCT; worksite unit of randomization. Matched-pairs of sites, random allocation within pair to intervention / minimal intervention (control). (5)	Health behaviours (no. of F&V; red meat; phys activity; multi-vitamins). Tested for sub-group different effects via gender, ethnicity; occupational type (worker v manager).	No significant overall improvements intervention groups, except with multi-vitamin use. Larger effects among workers for F&V /red meat consumption of managers; larger effects among non-white staff.
Hunt et al., 2007 <i>(Healthy directions – process evaluation)</i>	26 small business worksites from manufacturing sector, with 50-150 employees per site. Multi-ethnic workforce targeted specifically (66% sample born outside US). N=1408 (77% response rate). 12 intervention sites, 14 control sites.	Process evaluation of the <i>Healthy-Directions</i> study – cancer-prevention intervention; include all 26 sites – control sites received a minimal smoking – cessation	(as above)	(as above)	Survey data collected 2 months follow-up	Self-reported program awareness & program participation	58% respondents in main intervention sites were aware of program; 74% participated in HP or OH program (cf 29% in control sites). OH the most frequent uptake of one-one services offered in part of intervention (e.g. nutrition).

Tveito et al., 2008 Norway	Convenience sample of nurses, n=40 employed in a nursing home; 49% full-time; n=19 intervention, 21 control. All female nurses.	Pilot study, evaluating effectiveness of integrated program to reduce sick leave and health complaints, increase coping	Three components: physical exercise (3 x weekly exercise) stress management/ health information (seminars) & workplace assessment with participant contributions re improving job conditions / coping. 9 months duration.	Integrates individual and organisational change; implemented at the 'whole of workplace' level.	Compared control and intervention group; participants randomly assigned; baseline and post-intervention data collected. (5)	Assessed sick leave, subjective health complaints; coping, job stress; job demands, control, HRQoL and acceptability of intervention. Standardised assessments validate in Norwegian where available. Subjective effects of intervention assessed using study-specific measures	No effect against most outcomes; overall health complaints not reduced, but fewer neck complaints in intervention group; Self-reported ratings of health, work environment, fitness, job, pain and stress were improved in intervention group.
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*Rating of quality of study: level 4: evidence from pre-and post-testing with comparison group; level 5 = properly conducted randomised controlled trial

TABLE 2: Evidence from High-integration, mixed-quality studies

Authors, Date, Country	Population, workplace type (industry, sector, size)	Study Aims; target(s) of intervention*	Intervention & program details: Type, dose, delivery, components	Integration evidence & rating**	Evaluation design / type and rating of quality***	Outcomes assessed in paper	Effectiveness against targeted outcomes
Curwin et al., 2013 Canada	Govt. department in Dept of Justice (Public Service); n=402 employees across 12 sites. N=233 participants in evaluation	To determine the effectiveness of a workplace wellness program (preventative) on MSD's – prevalence and severity.	Intervention consisted of programs & policies. Group delivery & individual counselling about weight management; PA; ergonomics; smoking cessation. Targeted information re MSD's included: workshops, written info; ergonomic assessments; individual consultations; PA tailoring.	Integrated OHS prevention and health promotion information. Delivered organisationally via policies, environmental change & individual behaviour change.	Pre- & post design, using baseline data and 4-years follow-up, no comparison group.	Validated self-report instrument assessing: Prevalence of MSD's Prevention of normal work. Pain in past week. Number of body regions with pain	12-month MSD prevalence significantly reduced. Some significant results re specific regions of pain reducing over study period (eg back). Reduction in those reporting >5 regions of pain
Cunningham et al., 2008 Ireland	Healthcare workers in one large hospital (n=2237). Random sample of employees selected to complete pre-and post-intervention surveys, n=228 (57% response). 31% male in sample, 61% manual handlers.	To determine the efficacy of the <i>Working Backs Project</i> , an intervention aimed at managing back pain and reducing disability in health-care workers.	Intervention consisted of targeting health promotion campaigns tailored for managers, staff, clinicians, across a two year period.	Utilized a health promotion framework to deliver safety and injury prevention intervention. Established project management including databases, reporting, resources.	Pre- and post (2 yr) intervention surveys from random samples of employees, no comparison group	Outcomes included: Awareness of program; Staff on sick-leave related to back pain; No of leave days; Attitudes and beliefs; Intended management of back pain / injury	Awareness higher in managers of staff at post-test. Back-related sick leave & no. or days leave trend downwards. Significant improvements in attitudes, beliefs and management at post.
Nelson et al., 2006	Nurses from 23 acute care / high risk units across 7 facilities in US, between 38-60 beds/unit. N=825	Evaluate effect of a multi-component ergonomics intervention on	Intervention included 6 program elements: protocol for ergonomic assessment; patient	Intervention delivered by organisational change,	Pre-post design, no control group. Prospective	Injury rates; Modified duty days (following injury); Lost work days; Self-report	Significantly lower injury rate 24% vs 17% at post.. Significant reduction in

USA	participants, range of roles & qualifications; (random sample of n=300 invited complete pre-post surveys reported here).	injury rates, lost days; job satisfaction; unsafe incidents; Rol and costs. (Safe; Org: Costs)	handling protocols; peer safety leaders; patient handling equipment; review process; no lifting policy.	management involvement and individual peer leaders; targets individual behaviour change and organisational level change, environmental change.	collection of injury, absences and cost data for 9 month period, pre- and then post intervention.	unsafe incidents/lifting; Job satisfaction; Cost avoidance: medical treatment; WC costs; lost productivity; injury costs; costs savings; ROI.. Summed total injury costs pre- and post by including medical treatment, WC, lost work days, modified duty days.	modified duty days. Median lost work days decreased 14.2 vs 10 days per injury. Significant decrease in unsafe incidents. Increased job satisfaction. Pre: \$95,000 medical costs (WC, tests, physician care) vs post: \$49,244. WC costs pre: \$134,000, vs post \$35,200. Decrease in personal leave days; Total injury costs pre- and post-saving of \$245, 727.
Petterson et al., 2006 Sweden	Elder- and home-care workers affected by a recent restructure in one large care provider organisation (14 units in total); n=200 respondents (50% response rate)	Evaluation of an intervention aimed at improving work and health conditions, empowerment & coping among eldercare staff	Intervention comprised of three-phases: One employer trained, then delivered same training via worksite competence circles; these circles informed program of intervention at each worksite via network of innovation leaders and management to address OHS/Health/Stress/ work design etc.	Intervention tailored to each worksite via employee-management consultation; addressed organisational change and individual empowerment to initiate this change.	Pre- and post-follow up, no control group. Baseline data collected; follow-up survey collected 8 months	Job control; quality of care provided to clients; self-rated general health; workload; mental health and stress; coping, self-esteem & mastery	Increase in general health, but also increase in MSD symptoms & psychosomatic symptoms; No other effects from those measured (trends, but possibly under-powered to identify them)

TABLE 3: Evidence from Medium-integration, high-quality studies

Authors, Date, Country	Population, workplace type (industry, sector, size)	Study Aims; target(s) of intervention*	Intervention & program details: Type, dose, delivery, components	Integration evidence & rating**	Evaluation design / type and rating of quality***	Outcomes assessed in paper	Effectiveness against targeted outcomes ¹
Basen-Engquist et al., 1998 USA	N=40 worksites (subset of larger n=114 sites); gas and electricity suppliers; >80% male employees; sites vary between 70-600 employees; USA.	Test effect of a worksite cancer prevention program on organisational health and safety climate	<i>Working Well Trial:</i> Targeted lifestyle cancer prevention (diet, smoking); delivered via promotional materials, self-help activities, support groups, dose not reported	At each worksite: employee coordinator and Employee Advisory Board selected to implement, plan and tailor intervention activities.	Worksites randomised, (stratified matched-pair design); baseline and follow-up survey data collected; validated assessment of “organisational climate” developed in N=6450 respondents included “health climate” and “safety climate” (5)	Unit of analysis = worksite. Treatment X time X industry group tested for both “organisational health” and “organisational safety” climate	Organisational health climate significantly increased between baseline and follow-up in intervention worksites compared to control; Safety climate no significant change pre-post intervention.
Elliot et al., 2007 USA	Firefighters in 5 fire-departments in single state (Oregon); each station matched in triad. N=696 individual employees, 97% male; workgroup unit of randomization.	Comparison of two health promotion and protection interventions to improve health / safety behaviours	PHLAME program compared two interventions: one individual-centred (medical screening and motivational counselling), 4-6 sessions; compared with team-centred delivery (injury & stress prevention; lifestyle; QoL); 11 sessions in total. 18 month program.	Combines individual health promotion focus (illness prevention) with safety & injury prevention. Relies on team co-coordinator from staff to lead team sessions.	Each station (workgroup) matched in triad; then randomised to either of two intervention arms, or control arm. Followed-up at three months. (5)	Self-report assessment of health attitudes, knowledge, behaviour. Validated assessment of dietary intake. Physiological assessments by staff blinded to group allocation	Improvements across both intervention groups cf control: improved diets; less weight gain; improved fitness; improved overall well-being; improved ‘dietary social support’ in team group only.
Kawakami et	Large electric company; two blue collar intervention	Evaluation of a stress-reduction	Managed by a working committee (staff,	Managed and implemented by a	Pre- and post-survey design, follow-up at	Depression using standardized self-	Depression reduced in intervention group; no

al., 1997 Japan	worksites (n=111 employees) selected on basis of higher depression in staff survey; three comparison (matched) worksites selected (n=183).	program on blue-collar workers depression, sick leave and blood pressure	supervisors and medical staff). Supervisors reported stressors at their worksite; suggested possible improvements, plans to address prioritized stressors, plans were implemented across 12 months. EGS: mechanical improvements to machines; reorganisation of tasks; improved training; improve supervisor/staff ratios.	single working committee, comprised of supervisors and staff; implemented changes targeting the organisation and processes of work	one and two-years after implementation of intervention; non-random comparison group. (4)	report assessment; Length of sick leave over 1 year; blood pressure assessed at baseline and 2 year follow-up.	effect on blood pressure; reduced sick leave numbers and length of >1 day.
Kines et al., 2013 Denmark	14 SME's (10-20 employees) in metal industry; 6 intervention, 8 control sites, n=202 workers in total	Test applicability of integrated safety management approaches in SME's. Hypothesised positive effects on: Problem solving, safety behaviour, safety culture	Intervention consists of 4 professionally-led 'safety coaching' sessions for owner/manager; 2 professionally-facilitated consultations sessions with employees, over 6 month period.	SME context – safety & injury protection delivered by management	Pre-post design follow-up at 6 months; random assignment to intervention or control group (5)	Validated assessment of employee safety perception (multi-dimensional construct, 8 factors) Observational assessment of site safety – safety index	Improvement in intervention SME's on 6 (of 8) factors relating to safety culture No effect on worksite safety index
Kuehl et al., 2013 USA [see also Elliot	Fire-fighters in 4, large fire departments in one state (Oregon); n=1369 employees, 93% male, mean age 42yrs.	Evaluate impact of health promotion program on worker compensation claims (WC) and medical costs	PHLAME program compared two interventions: one individual-centred (medical screening and motivational counselling); compared with team-centred delivery (injury & stress prevention; lifestyle; QoL). 18 month	Combines individual health promotion focus (illness prevention) with safety & injury prevention. Relies on team co-coordinator from staff to lead team sessions.	Quasi-experimental before & after design; compares 2 intervention departments (aggregated) with 2 matched controls (aggregated).	Total annual WC claims per department; Total WC per employee; Total annual medical costs per department; (tracked across 4 yrs during & following intervention)	8% reduction in WC rates in intervention depts. compared with 13% increase in control depts. Lower mean medical costs in intervention depts. Less spent per employee; 7% increase per head in intervention, cf 24% increase in control

et al., 2007 main results]			program.		(4)		depts.
Okechukwu et al., 2009 USA	10 worksites with training programs for apprentices. Sample was n=1213 building trades apprentices recruited via Unions. Four intervention (n=1044) and 6 control sites (n=897) trainees.	Investigate effectiveness of a smoking cessation intervention for apprentices in building trades.	Intervention delivered over a 4-month period. Smoking cessation delivered within health and safety curriculum, alongside info re other hazards and exposures. Also included group-behavioural counselling; nicotine replacement therapy; quit kits; environmental messages & supports (eg family).	Full-integration within established health and safety training. Targeted individual and environmental change.	RCT; worksites size matched and then randomly assigned to study group. (5)	Survey data collected at 1-month and 6-9 month follow-up. Prevalence (intensity & frequency) and abstinence of smoking at follow-up, self-efficacy to quit; quit rates.	At 1 month, significantly more quitters in intervention group 26% vs. 16%, not sustained at 6 months. Intervention sites had OR=3.1 reduced decreases in amount smoked; sustained at 6 months.
Roter et al., 2006-7 USA	Random sample of n=500 building trade union workers; half control group, half intervention group. 21% response to follow-up survey	Evaluation of a participatory action research intervention aimed at reducing asbestos hazards, including smoking cessation	Intervention 'photonovel' designed in structured stages by n=8 union presidents & members volunteering for program design & production. Targets smoking, safety, health-related information and organisational change.	Involved management and workers in design & implementation; targeted individual behaviour change and work organisation; includes safety, health and health promotion; focus on collective & individual action	Compared control (usual care) versus intervention group; low response rate to post-intervention survey (4)	Knowledge, practice and attitudes re health risks; smoking behaviours; acceptability & accessibility of program	Improved awareness, knowledge and attitude; high degree of satisfaction with materials; improved understanding of risk, handling a complaint re asbestos in intervention group. No smoking outcomes assessed.
Serxner et al., 2001 USA	Large telecommunications company; (n=8500 employees)across 20 facilities dispersed in one state. N=1628 employees included in evaluation, n=450 accessed program, n=1178 for comparison group.	Investigated effect of comprehensive health promotion program on short-term disability (sick) days.	Intervention included on-site and remotely delivered components: OHS, ergonomics; fitness centre; targeted programs for top-5 risks identified; weight management; smoking cessation. Remote risk-reduction programs;	Intervention included health promotion and protection, injury prevention, delivered across multiple sites. Primary goal of program was to integrate & improve	Quasi-experimental time series design, between group comparisons. Self-selected participants (vs non participants) across three time-points – 1 yr pre-test; 1 & 2 yrs post-	Net lost days from short-term disability (STD) compared baseline > f-up.	Non-participants STD days increased by 15% over follow-up; participants decreased by 5%. Differences driven by fewer 'cases' per employee, and fewer days STD per case event.

			counselling via telephone access.	continuum of care to employees.	test. (4)		
Talvi et al., 1999 Finland	Employees of 2 oil refineries. Site A: intervention, all employees invited n=365 agreed and available at 3 yr follow-up. Site B: reference site, random group selected n=433 available at follow up (90% retention). Majority were male, >60% blue collar occupations.	Evaluating effectiveness via the assessment of change (ie disappearance) of employees health promotion needs after 3-year follow-up – long term outcomes. Targets of program include physical activity; MSD's; diet, obesity; BP; smoking.	All participants received initial screening. Intervention group received individualized HP counselling, format plan/goals; referral to relevant program (PA; nutrition/dietary intake; MSD prevention; smoking cessation; mental health & sleep etc)	Intervention delivery by OH physician & nurse, integrated delivery of health and prevention, health promotion targets by this team.	Compared intervention site with reference site, no randomization, pre- and post-evaluation. (4)	Repeated initial screening at three years to assess health promotion needs in the following target areas: Physical activity; dietary intake; BMI; BP; cholesterol; smoking; sleep disorders; mental health (GHQ); MSD's.	Only effective against physical activity outcome. No other changes explained by participation in the counselling that was the core of the intervention program
Verweij et al., 2012 The Netherlands <i>(Balance@Work project)</i>	N= 16 occupational care physicians (OP's)working in med-large organisations > 100; each recruited employees screened to be 'at risk' n=523 in total; 7 intervention OP's, 9 in control group	Evaluation of a workplace policy/guideline introduced via OP's into intervention sites. Guideline targets physical activity, sedentary behaviour & weight.	The intervention (guideline) components include: individual counselling; environmental scan and prioritized goals to reduce sedentary behaviours; included evaluation and maintenance of above actions.	Health promotion activities delivered and overseen by OH physician;	RCT: OP's randomly allocated to group	Physical activity; sedentary behaviour; dietary behaviour; weigh-related outcomes (BMI, waist cm etc); follow-up at 6 months post-intervention.	Only those with 'obese' BMI increased activity, no effect for those with normal/overweight. Reduced work-time sedentary behaviour in intervention group; increased in fruit intake; no change to weight-related outcomes.
Verweij et al, 2011 The Netherlands <i>(Balance@Work</i>	N= 7 occupational care physicians (OP's)working in med-large organisations > 100; these were the intervention sites of Balance@work guideline	Process evaluation of the Balance@work guideline aimed at preventing weight gain.	(as above)	(as above)	(as above)	Reach, organisational context; dose; participant satisfaction; fidelity; effect on weight, waist cm.	Reach and satisfaction were high (>80%), and these in turn associated with effectiveness of intervention for health outcomes. Mixed results for fidelity /

<i>project)</i>							context.
Vuori et al., 2012 Finland	Participants from 17 worksites southern Finland, m-l size, predominantly white collar. From these, total n=718 participants: 31-64 yrs; 88% women; >50% post-school qualification; 81% public sector employees. N=369 intervention, n=349 controls.	To evaluation effect of group delivered, resource-building intervention on mental health (depression, exhaustion); work engagement and mental resources.	Preventive intervention, intensive- group delivery, 4 sessions across one week. Content included improved career self-efficacy, coping & resilience-building, improving capacity for career management.	Stated purpose of program, and implementation required collaboration between OHS and HR at each worksite.	RCT: individual participants randomized to intervention or control (within each worksite). Pre-, post and 7 month follow-up data collected. (5)	Standardised assessments of depression symptoms; exhaustion; work engagement; mental resources; intention to retire early. Interaction effects tested to moderation by subgroup effects.	Main effects: reduction in depression symptoms & intention to retire in intervention group; improved mental resources. Associated with small to very small effect sizes (0.14-0.22). Increased benefits from intervention for those reporting elevated depression or exhaustion at baseline (estimated med effect sizes 0.32-0.47)

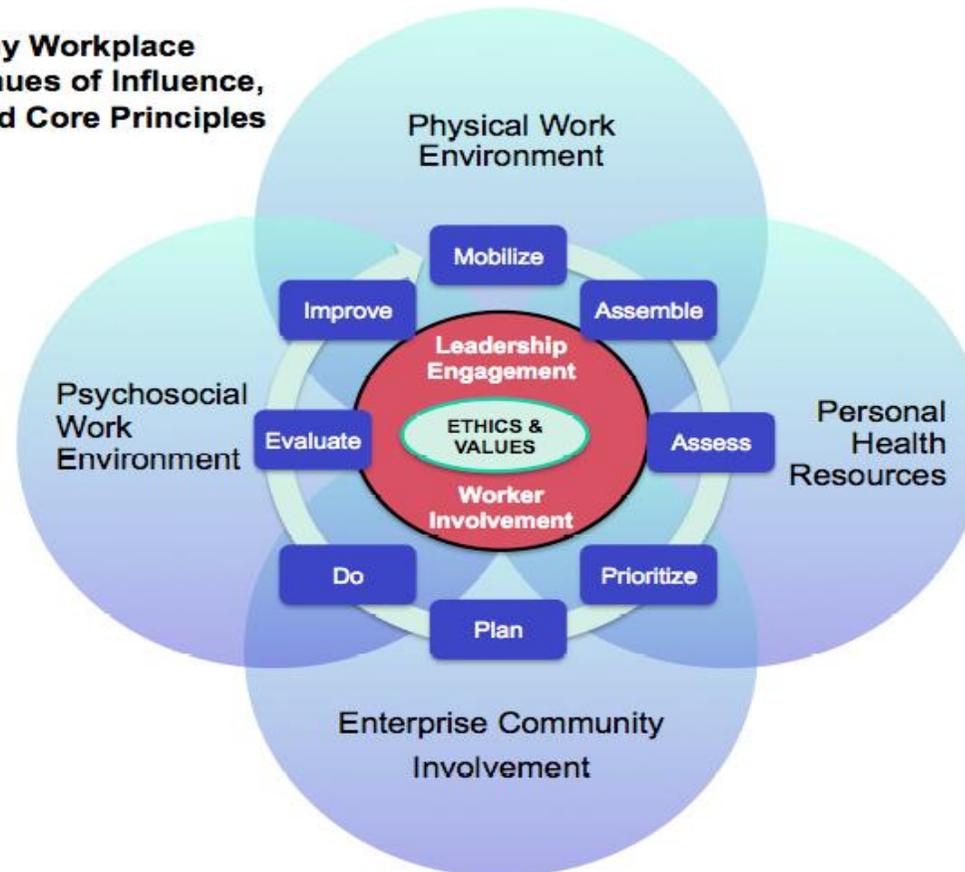
*Rating of quality of study: level 4: evidence from pre-and post-testing with comparison group; level 5 = properly conducted randomised controlled trial

TABLE 4: Evidence from Medium-integration, mixed-quality studies

Authors, Date, Country	Population, workplace type (industry, sector, size)	Study Aims; target(s) of intervention*	Intervention & program details: Type, dose, delivery, components	Integration evidence & rating**	Evaluation design / type and rating of quality***	Outcomes assessed in paper	Effectiveness against targeted outcomes ¹
Barbeau et al., 2006 USA	Iron worker apprentices 97% male enrolled in union-sponsored traineeship (ie across variety of worksites); n=337 (89% response rate).	Test effectiveness of a smoking cessation intervention delivered to apprentices via their training curriculum	<i>MassBuilt Program</i> : health protection-health promotion model; delivery over 4month period. Includes health education; smoking cessation support-group; nicotine therapy; health promotion materials & incentives.	Conceptualised as health-promotion & health protection; health promotion delivered as part of OHS training for apprentices	Feasibility & effect size study: pre- and post- test, no comparison group. Baseline and follow-up survey 1 month post intervention.	Smoking behaviour: use, frequency, intensity; Intention to quit; Self-efficacy to quit	Abstinence rate 20% of baseline smokers. OR = 3.0 for quitting for participants vs. non-participants. Positive changes in intention & efficacy to quit sustained in participants cf non-participants
Elo et al., 1998 Finland	Selected departments of a manufacturing company (n=118 employees)	Evaluation effectiveness of intervention based on survey feedback methodology to reduce workplace stress	Based on baseline survey results; 10 sessions of feedback to work teams; action research – employee discussion; aims and planning for changes to be implemented by management and workers. Delivered over three years.	Integration of managers, OHS and employee participation;	Pre- and post-survey design, 62% retention rate. Continual follow-up across study period	Employee perceptions of job quality; workload; mental and physical stress. Organisational actions (workload; policies and procedures; models of communication)	Improved job quality; reduced mental and physical stress.
Ott et al., 2010 Germany	Cohort (N=24586) male employees, working in manual, skilled or first-line supervision in one municipal region. Eligible employees were >35 yrs.	Evaluate effect of occupational health services including health promotion chronic disease incidence and mortality	Health seminar program incorporating ergonomics, lifestyle, stress, coping and physical activity. Professionally-led workshops delivered off	Integrates health initiatives into occupational health. Focus on individual behaviour change.	Compared baseline with follow-up over one year, for 10 years of delivery of program. Non-random assignment.	Compared incidence of chronic diseases; mortality.	No effect on disease incidence, reduced mortality 13-17% estimates (depending on alternative explanatory models used in analyses)

Appendix C – The World Health Organization *Healthy Workplaces Framework*

Figure 9.4
WHO Healthy Workplace
Model: Avenues of Influence,
Process, and Core Principles



(Burton, 2010)

Appendix D - Interview schedule

Questions	Prompts
<i>I would like to hear more about your workplace's experience in implementing health worker activities</i>	
1. Could you give me examples of worker health activities that are currently implemented in your workplace?	<ul style="list-style-type: none"> • Could you describe further what has been done? • Do you consider that both individual and organisational factors are addressed? • Do you consider that health safety and health promotion are equally addressed? • What are the main obstacles to their implementation? • What are the best achievements? • What could be done better?
2. Tell me about your role in these activities and what do you find the most challenging?	<ul style="list-style-type: none"> • Did you volunteer to be involved? • Do you get support from your colleagues and/or manager? • Do you find easy to conciliate your engagement with your normal workload?
<i>I am interested to better understand how your workplace is organised to make this approach a reality</i>	
3. Could you describe how services or departments related to worker health are collaborating?	<ul style="list-style-type: none"> • Has any specific body/committee been appointed and activated for the program? • If yes, does it include representatives from OSH, WHP and HR to improve collaboration across departments? • Have new mechanisms of interdepartmental collaboration been put in place? Are they formal or informal? • Is there a manager facilitating cohesion among these departments?
4. Do you think that sufficient human and financial resources are allocated to support the program activities' implementation?	<ul style="list-style-type: none"> • Is a budget planned and allocated for the program? • Has sufficient staff been assigned to the program? • Did the employees receive training?
5. Could you tell me how both workers and management are engaged? And what do you think are the main barriers to their participation?	<ul style="list-style-type: none"> • What are the existing mechanisms of consultation? • If new elements have been introduced, have workers or their representatives been notified and consulted? • If there is an employees' union in your workplace, have representatives been consulted? • Are managers actively involved in any wellness/health committees? • Have employees raised any concerns about the confidentiality of their health data?

	<ul style="list-style-type: none"> • Is a system of incentives in place to increase employees' participation?
<p>6. Has this new approach been clearly developed and communicated to all employees? And how could it be improved?</p>	<ul style="list-style-type: none"> • Has the management adopted integration of wellness and OSH as a priority? • Is there clear, consistent communication regarding the progress and details of the program to all affected staff? • Do you think that all employees have a good understanding of what this integrated program means? • Are there clear guidelines for the program? Do they include both short-term and long-term goals?
<p><i>I am now interested in the outcomes and benefits of such approach</i></p>	
<p>7. Is there a way to regularly and accurately evaluate the progress and outcomes of the program?</p>	<ul style="list-style-type: none"> • How does it work? • Have measurement tools or indicators of performance been set up? • Are the results shared with the employees who participated in the program?
<p>8. So far, what are the benefits that have been identified?</p>	<ul style="list-style-type: none"> • Are these benefits equally addressing employee and workplace health? • What are the immediate benefits of the program? • What are the long-term benefits?
<p>9. Do you think that these benefits are visible to all employees?</p>	<ul style="list-style-type: none"> • Do all employees have equal access to program activities? • Generally speaking, are employees satisfied with the benefits that they get out of the program activities? • Do you know if any groups are dissatisfied with certain activities?
<p>10. Is the program designed to adjust to changing circumstances (worksites, workforce, resources, projects, opportunities)?</p>	<ul style="list-style-type: none"> • Did it already happen in your workplace? Could you describe the circumstances? • Do you consider the program flexible enough? • What could be done better?
<p>Conclusion of interview</p>	
<p>11. Are there any other aspects that we have not discussed and that you consider important to mention?</p>	

