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Guide to Total Workplace Safety and Health

Holistic Safety, Health and Wellbeing in Your Company

Year of issue: 2014

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1. Introduction

Singapore is small and lacks natural resources. As our most important resource is manpower, it is prudent to maintain and improve our human capital in order to sustain our knowledge-based economy. The traditional challenges of workplace safety and health are understood and much effort has been placed in the preservation and maintenance of our human capital through the prevention of acute injuries and death. While Singapore has made significant progress in reducing workplace accidents, injuries and fatalities, as the economy evolves alongside the aging workforce, we are faced with a new spectrum of safety and health risks.

DO YOU KNOW?

Prevalence of Chronic Diseases in Singapore (2010)

High blood pressure	24%
Diabetes Mellitus	11%
High total cholesterol	17%
Obesity	11%
Daily smoking habit	14%

Source: MOH, National Health Survey 2010.

Singaporeans are getting older and working longer. With increasing age, there are more individuals developing chronic illnesses, including high blood pressure, diabetes mellitus, heart conditions, stroke and kidney failure. A large number of these conditions can be prevented and detected early through regular screening. With proper treatment, those who are diagnosed earlier can also greatly reduce the risk of subsequent complications.

Compounding the problem of the aging workforce is the increasingly tight labour market. Many employers face challenges with hiring and retaining staff. Companies are competing for employees and the swift pace of change coupled with the impact of global economic cycles and consolidation in and across various sectors adds to the strains on companies and their employees. Some employees may have difficulty adapting to such changes, which may result in stress, burnout, sickness absence, or presenteeism[1], thereby impacting their productivity and motivation levels.

Economic activities in Singapore have also evolved over the last 20 years from traditional heavy manufacturing to higher value-added manufacturing, services, and research. As a result, health conditions related to work are also changing from traditional occupational diseases to more "work-related" conditions, such as musculoskeletal disorders and mental health conditions. This change is not new and has been observed in developed economies such as the United Kingdom and the Scandinavian countries. Singapore must prepare itself to meet these challenges and the workplace is a key strategic partner in preventing chronic diseases and improving wellbeing of its own employees through health promotion.

[1] *Presenteeism is the practice of coming in to work despite illness or injury and may likely result in lowered productivity.*

Although, progress has been made in the area of workplace safety and occupational health, the workplace must continue to maintain and improve workplace safety and health (WSH) standards to prevent accidents and occupational diseases. According to the International Labour Organisation (ILO), 6,300 people in the world die every day as a result of occupational accidents or work-related diseases – more than 2.3 million deaths per year. 317 million accidents occur on the job annually, with many of these resulting in extended absences from work. The economic burden of poor workplace safety and health practices is estimated at 4% of global Gross Domestic Product (GDP) each year.

While Singapore saw 67 fatalities in 2008 due to workplace incidents, the Workplace Safety and Health Institute (WSHI) estimates a total of 1,388 cases of fatal work-related diseases in Singapore in the same year of which 62% were cancers and 22% were circulatory diseases. WSHI also estimated that the total cost of work injuries and ill health for Singapore in 2011 was S$10.45 billion, equivalent to 3.2% of Singapore's GDP. Employers bore a total cost of S$2.31 billion or, on average, about S$8,000 per case.

Our current workforce will be working longer, retiring later and having more chronic diseases. A new approach that integrates health, safety and wellbeing effectively needs to be developed so as to prevent accidents and occupational diseases and improve the wellbeing of the working population. In this way, we can work safely, healthily and productively for a lifetime.

2. An Integrated Approach

The work environment and overall health, safety and wellbeing of employees are strongly connected. Diminished health and injury, whether caused by work or not, reduces the quality of life, work output and even income. Conversely, enhancing opportunities for the total safety, health and wellbeing of employees reduces risks of ill health and injury, leading to a vibrant and productive workforce. Risks at the workplace affect health and the health condition of an individual may affect or modify the risks at the workplace.

To improve health, safety and wellbeing of employees in an efficient manner and prepare for the future, the interconnected issues of safety and health are best managed in a comprehensive and integrated manner. This integrated approach views a safe and healthy workplace as one that has workers and managers collaborating in a continual improvement process to protect and promote the health, safety, and wellbeing of all workers and the sustainability of the workplace. In this approach, risk assessment processes take individual risk factors into consideration. Integrating programmes that control risks in the workplace together with the promotion of health can create synergies that result in improved productivity, performance, reduction in sickness absence, employee retention, financial performance, return on investment and quality of life. We call this integrated approach "Total Workplace Safety and Health".

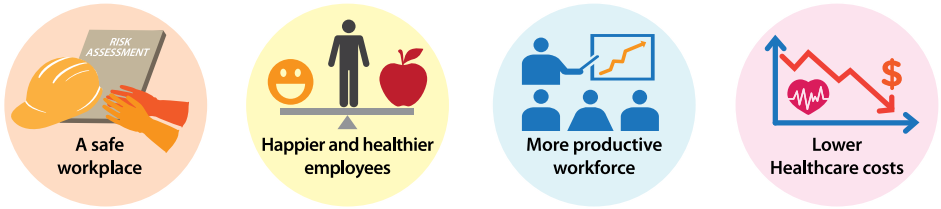

Figure 1: Some benefits of Total WSH.

3. Total Workplace Safety and Health

Total Workplace Safety and Health (Total WSH) is a holistic approach to managing safety and health in the workplace. It includes a proactive, comprehensive, and integrated assessment of all risks in the workplace including workplace safety, workplace health and employee wellbeing. This approach needs continued and active participation by all employees and management working in partnership to comprehensively reduce risks. It recognises that WSH can affect the health of the employee, and vice versa.

More than two decades ago, Johnson & Johnson developed a health and wellness programme integrating employee health, wellness, disability management, employee assistance and occupational medicine programmes. The LIVE FOR LIFE Programme, as it was called, had a special focus on the shared services concept. In order to reduce the silo effect between departments and promote cross-utilisation of resources, administrative systems were established. Since then, their financial impact studies have found reductions of about US$8.6 million per year in employee health care and administrative costs.

Source: American Journal of Health Promotion (2001; 15: 365-367), Isaac, F. and Flynn, P

DO YOU KNOW?

A pilot study on Total WSH in companies in Singapore conducted in 2012 found that employees in companies with a holistic, comprehensive and integrated approach to WSH compared to those without were:

- 4.4x more likely to be proud to work for company;
- 7.4x more likely to be satisfied with current job;
- 1.7x more likely to report work-life balance; and
- More than 50% of these companies also saw the value of Total WSH.

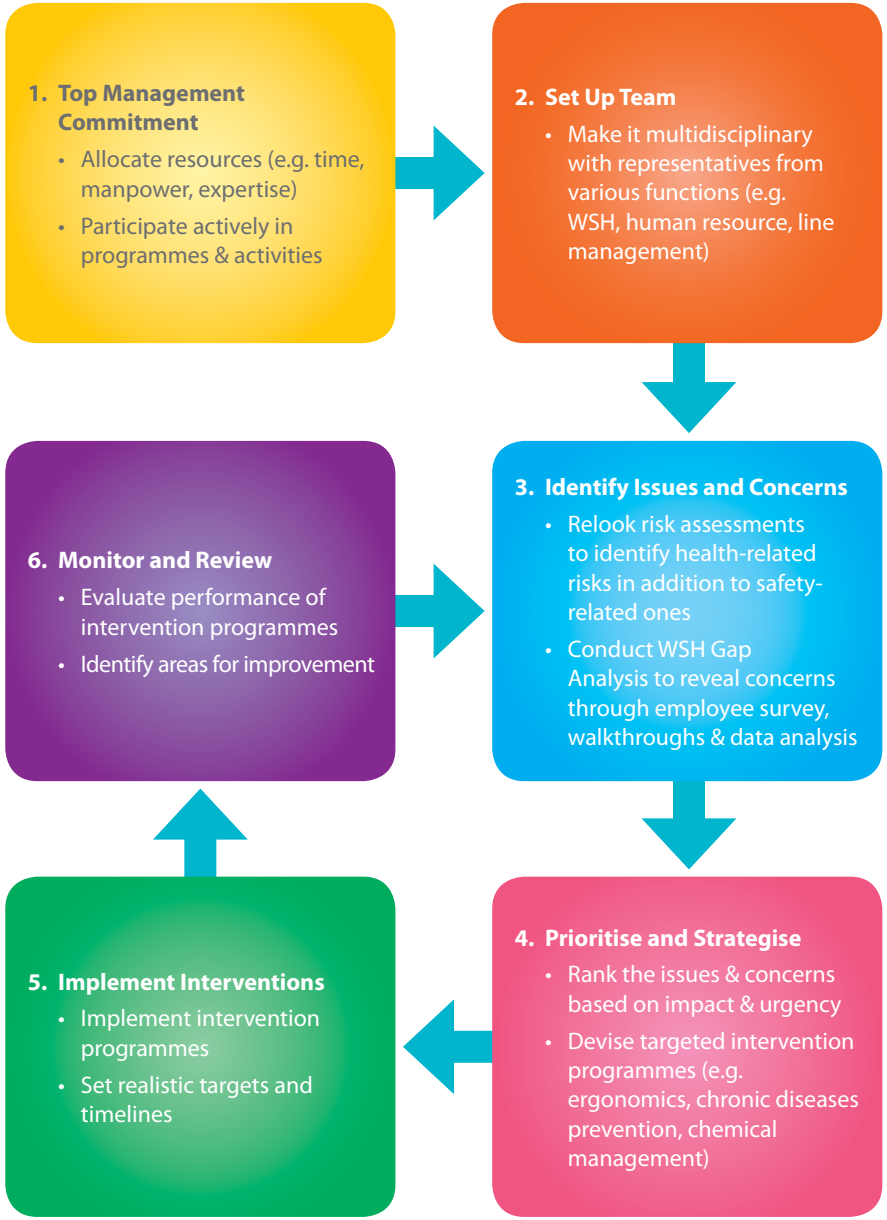

Figure 2: The Total WSH Process.

4. Committed Top Management

Top management should demonstrate commitment to make Total WSH a success for the organisation. Leaders can set the vision and put enablers in place to implement Total WSH. Engaged, committed and involved leaders are critical to the success of any workplace initiative, including setting in place a comprehensive and integrated approach to WSH. Their vision and commitment is key as they drive change and break down silos in the workplace. A good start would be to endorse a WSH Policy for an integrated and comprehensive system and to be supportive of implementing the organisation's WSH programmes, policies and practices in an integrated and holistic manner.

Top management could lead the way for the organisation by:

- Determining and making available, in a timely and efficient manner, all the resources (including time, manpower, information, need for expertise and training etc.) needed to adapt to an integrated and holistic approach in the workplace;
- Identifying key leads with sufficient authority and roles and responsibilities; and
- Actively participating in related programmes and activities (lead by example).

The foundation for building a healthy, productive, and resilient workforce in any workplace begins by identifying major strategies related to organisational leadership and commitment, including:

- Articulating the vision of workplace safety and health, employee health and wellbeing as key components of organisational success;
- Instilling a culture of safety and health that includes the elimination and/ or minimising of risks and hazards from the physical and psychosocial environments and creation of a supportive environment for holistic and integrated WSH;
- Demonstrating to employees that management is committed to their health and wellbeing;
- Setting the direction to integrate activities and programmes related to WSH, Workplace Health Promotion (WHP), data collection, benefits design, behavioural health, absence management and disease management, among others;
- Visible participation in all activities, engaging mid-level management and ensuring that they support the activities and encourage their subordinates to participate; and
- Implementing and sustaining a holistic approach.

Appoint champions at various organizational levels to promote and build awareness of Total WSH.

Appoint a member of senior management to ensure that any workplace issues are always looked at from all perspectives of WSH and the impact of work on health and health on work is always at the forefront and considered.

5. A Responsible Team

To facilitate the implementation of a holistic and integrated system, a team should be put together to lead efforts in meeting the organisation's Total WSH objectives. This team could be formed as a new team or by combining the existing committees that look into workplace safety, health and/ or wellbeing, such as the WSH Committee. The team or the WSH Committee should include members from the operational, supervisory and managerial roles from various departments or functions in the organisation as well as employee and union representatives, human resource representatives, WSH and WHP experts and programme leaders in the company.

To break down the "silos" across departments and levels dealing with WSH issues and wellbeing matters, discuss workplace safety, health and wellbeing issues, results, outcomes and programmes jointly. Alternatively, the same representatives could participate in both WSH and WHP committees, or a common committee or team could be formed.

The team or the WSH Committee should:

- Make use of collected data and information for review and analysis in an integrated and employee-centric manner;
- Identify employees' needs and priorities that could be addressed in the workplace and adopt integrated comprehensive approaches to address the issues;
- Set SMART[2] goals and objectives for WSH policies, programmes, and practices;
- Recommend adequate resource allocations that support WSH policies, programmes, and practices in a holistic manner;
- Make policy and programme decisions that are comprehensive and evidence-based with inputs from other groups (e.g. other committees, relevant divisions or departments) in the workplace;
- Facilitate holistic and integrated WSH implementation by assigning necessary champions/ working groups and responsible person(s) to carry out various WSH programmes;
- Routinely and efficiently report progress to senior/ top management;
- Provide accountability for WSH to top management and working groups;
- Communicate activities to and seek participation from all levels of employees;
- Seek feedback and incorporate inputs from employees through their representatives in the team or WSH Committee; and
- Review programme operations periodically to assess progress and adapt goals and strategies as necessary.

To perform their role effectively, WSH Committees or team members need to have sufficient training in WSH and wellbeing to be competent in fulfilling their roles. It is recommended that human resource personnel also have some cross training in workplace safety and health and workplace health promotion as well. Where possible, WSH personnel, such as WSH officers, should have cross training in workplace health promotion and other relevant areas they are not familiar with.

Members of the WSH committee or team should retain their integrity and professional independence, acting on the basis of best available documented scientific evidence and be balanced and objective in their opinions and actions. Access to confidential medical information should also be restricted to a need-to-know basis and with the consent of the employee. Outcomes of health screening exercises should be shared in an aggregated manner to ensure confidentiality. Individual employees should be provided with the results of their health screening tests and advised on measures they can take to upkeep and improve their health.

WSH committee members or team members may at times be placed in situations where conflicts may arise between the rights of the employee with a condition or an employee with an illness that could pose serious risks to his own health, the health of his colleagues or the public. Should any conflicts arise, resolution should be sought following the principles of national or international ethical frameworks[3]. Affected employees must be communicated to and provided objective, unbiased advice on the various available courses of actions.

In areas where the WSH Committee or team is not familiar with or less competent in, external experts with the required working knowledge could be engaged. These experts may include workplace safety and health officers, occupational hygienists, designated workplace doctors, occupational physicians, toxicologists, construction engineers, safety engineers, organisational psychologists, WSH and WHP consultants, service providers, etc. Service providers should have cross-training in safety, workplace health protection and workplace health promotion so that they are better able to understand the complex challenges between safety, health and wellbeing. In this way, they are also able to recommend holistic and practicable solutions to address those challenges.

[2] *SMART stands for Specific, Measurable, Attainable, Relevant and Time-bound.*

[3] *Examples of Ethical Frameworks include:*

- *International Code of Ethics for Occupational Health Professionals published by the International Commission on Occupational Health (ICOH); and*
- *Ethical Code and Ethical Guidelines published by the Singapore Medical Council.*

6. Holistic Risk Management

To manage safety, health and wellbeing holistically, integrated and comprehensive **Risk Assessments (RAs)** and **Total WSH Gap Analysis (Gap Analysis)** should be performed. RAs and Gap Analysis work hand in hand to enhance each other and both should be done on a regular basis. Gap Analysis could identify areas that the RA could have missed out or monitor the effectiveness of risk control measures. Findings from Gap Analysis could highlight work activities that require closer scrutiny and subsequently enhance the RA for these highlighted activities.

Organisations with RAs in place could perform a Gap Analysis first to enhance and review their existing RAs.

6.1 Risk Assessment

Under the WSH (Risk Management) Regulations, organisations are required to conduct RAs to identify, evaluate and control safety and health risks posed to any person who may be affected by the activities in the workplace, prior to work commencement. RA aims to reduce workplace incidents and improve the overall safety, health and wellbeing of everyone in the workplace.

A multidisciplinary RA team should be formed, consisting of personnel who have different responsibilities for the work operations, personnel who are familiar with the potential hazards and risks of the work activities, such as WSH officers, occupational health nurses and occupational hygienists, and human resource representatives. Relevant information pertaining to the work and operations, such as a list of work activities, should also be collated beforehand to facilitate better understanding by the team.

Encourage active participation from employees in the process of risk assessment. They can help to identify hazards, evaluate risks and come up with ideas for control solutions and relevant WSH programmes.

After completing the preparatory work, the workplace risks are then assessed in three simple steps. They are hazard identification, risk evaluation and risk control.

1. Hazard Identification	2. Risk Evaluation	3. Risk Control
• Identify hazards. • Identify potential accidents or incidents. • Identify possible impact of individual health risk factors on work	• Estimate the risk levels of the workplace hazards identified. • Prioritise the hazards to be controlled.	• Formulate the control measures according to the Hierachy of Controls. • Analyse and evaluate residual risks.

Figure 3: The 3 steps to evaluate workplace risks.

6.1.1 Hazard Identification

To conduct an integrated and comprehensive RA, three aspects should be considered and evaluated side by side when identifying hazards. These aspects are, namely, physical work environment and processes, work organisation and individual health factors.

Figure 4: Three aspects of hazard identification.

(i) Physical Work Environment and Processes

Hazards in the Physical Work Environment and Processes are hazards arising from work processes carried out in the physical workplace or environment. For example, noisy machines from one process could cause other quieter areas in the vicinity to have an increase in overall noise levels. Hazards of the physical work environment and processes can result in physical harm to persons, causing death, disability, injury and/ or ill health.

The following are some examples:

Physical	Mechanical aspects (energised equipment, moving parts, machinery, equipment, etc.), working at heights, exposure to excessive noise levels, ionising and non-ionising radiation, etc.
Chemical	Exposure to hazardous substances, flammable materials, toxic substances, etc.
Electrical	Contact with exposed cables, live wires, etc.
Ergonomics	Manual handling, manual lifting, awkward postures, forceful exertions, repetitive movements, work with visual display units, etc.
Biological	Infectious agents, viruses, bacteria, etc.

After hazards in the physical work environment and processes have been identified, consider also the possibility of exposure to hazards from other work processes in the vicinity.

Possible sources of exposure include:

- High noise levels from one work process affecting employees at a different department or work process;
- Employees not in direct contact with or handling chemicals are exposed to chemicals emitted from a separate work process in the vicinity;
- Fires and/ or explosions in production areas affecting other employees (e.g. sales, human resource, finance, etc.) sited in the same or adjoining building.

(ii) Work Organisation

Work organisation looks at how work is structured within the organisation and can be affected by the physical work environment and processes. Tasks could be organised in a manner that underlying causes of unsafe behaviour and ill health are reduced, so that work can be carried out safely. Organising the work well to suit the employee may be more effective than seeking to adapt employees' behaviour. In this way, organisation's productivity can be enhanced correspondingly. To identify hazards that may arise from this aspect, the following areas could be looked into:

- Work overload with unrealistic deadlines;
- Lack of influence or control over how day-to-day work is done;
- Prolonged working hours that may lead to fatigue and loss of concentration on the job;
- Employees returning to work after recovery from injury/ illness;
- Lack of support from supervisors or colleagues;
- Lack of training or preparation to do the job;
- Too little or too much responsibility which may make the employee feel helpless or overwhelm the employee;
- Ambiguity in job responsibilities or unclear expectations;
- Lack of appreciation for job well done;
- Discrimination or harassment;
- Poor communication among superiors and colleagues;
- Lack of support for work-life balance;
- Lack of respect for employees and the work done.

Having adequate and appropriate planning can result in better safety performance and higher productivity. For example, holiday seasons tend to lead to a surge in demand or a reduced workforce. To have production needs meeting demand may cause a strain on the workforce. Some organisational strategies to overcome the manpower crunch are hiring temporary staff, staggering planned annual leave, forecasting clients' needs etc.

(iii) Individual Health Risk Factors

The individual health risk factors of employees who are involved in the work processes and activities should also be considered when conducting RAs. Individual health risk factors of some employees may cause them to be more affected by the work environment, work processes and work organisation. Some particular employee groups to consider include new hires, older and younger workers, new or expectant mothers and those with disabilities or health conditions.

Some individual health risk factors to recognise in employees include:

- Smoking;
- Older workers;
- Obesity;
- Pre-existing health conditions or risk factors (e.g. asthma, Diabetes Mellitus, high blood pressure, allergies, hearing loss, visual impairment, etc.);
- Return to work after recovering from an injury or ill health;
- Pregnancy;
- Demographics such as gender, ethnicity and age.

Certain health conditions may put an employee at increased risk of incidents at work. This can also happen when an employee returns to work after an illness or injury. Assessment on the fitness to work and return to work after an illness or injury should hence be performed. Rehabilitation or job modifications can be provided for an employee in the return-to-work process. Assessment on fitness to work can also be done for new hires and for existing employees with new job placements.

Early identification of employees with health issues and early access to rehabilitation can allow them to return to work earlier and reduce the incidence of possible risks and injuries. In addition, work adjustments can also be made to allow employees who are either recovering or have existing health conditions to continue working safely and healthily. Organisations should take on the onus to support their employees back to health so that they can return to work and remain at work.

Diabetic employees with poorly-managed sugar levels can suffer from blurred vision and impaired senses. This may increase their risk while at work, especially when operating machinery. However, employers can put in place screening and medical surveillance programmes to identify employees who are more likely to develop diabetes and provide healthier options for diabetics at the staff canteen. This encourages a trusting and open environment where employees would not put their own safety and health at increased risk for fear of losing their jobs.

To depict an integrated and holistic approach for hazard identification in RA, an example based on a supermarket workplace setting is shown in the following table. Note the italics in the table.

Work Process	Major Work Activities Associated with the Process	Hazards	Accidents or Ill Health Arising from Hazards
Cashier's duties.	Cash and card transactions.	Prolonged standing postures. *Excessive overtime: Fatigue may cause loss of concentration.*	Lower back pain Musculoskeletal disorders (MSD). *Older workers may have increased incidence of lower back pain/ MSD.*
	Packing paid items in bags.	Repetitive, awkward and forceful movements. *Excessive overtime: Fatigue may cause loss of concentration.*	Musculoskeletal disorder (MSD) *Older workers may have increased incidence of MSD.*

Table 1: Example of hazard identification.

More examples may be found in Annex C.

6.1.2 Risk Evaluation

For each of the hazards identified, estimate the risk levels of the hazards and determine their acceptability. The outcomes of risk evaluation serve as references for prioritising actions to control these hazards and minimise safety and health risks to the affected employees.

When estimating the risk level associated with each hazard, predict the severity of the hazard and estimate the likelihood of the accident or ill health occurring with the existing risk controls. The severity of the hazard takes into consideration the consequences that could be caused by the accident or ill health. Controls that are not easily bypassed by persons at work and are well-maintained will greatly reduce the likelihood of the accident occurring. On the other hand, workplaces with poorly maintained controls (i.e. virtually non-existent) or lacking in the implementation of control measures, it is expected that accidents occur more frequently.

Once the severity and likelihood have been established, the risk level can be obtained by using a risk matrix. The following figures give an example of how severity and likelihood come together to help determine risk level via a 5x5 risk matrix with risk prioritisation numbers[4] (RPNs).

Likelihood (L) / Severity (S)	Rare (1)	Remote (2)	Occasional (3)	Frequent (4)	Almost Certain (5)
Catastrophic (5)	5	10	15	20	25
Major (4)	4	8	12	16	20
Moderate (3)	3	6	9	12	15
Minor (2)	2	4	6	8	10
Negligible (1)	1	2	3	4	5

Level	Severity	Description
5	Catastrophic	Fatality, fatal diseases or multiple major injuries.
4	Major	Serious injuries or life-threatening occupational diseases (includes amputations, major fractures, multiple injuries, occupational cancer, acute poisoning).
3	Moderate	Injury requiring medical treatment or ill health leading to disability (includes lacerations, burns, sprains, minor fractures, dermatitis, deafness, work-related upper limb disorders).
2	Minor	Injury or ill health requiring first-aid only (includes minor cuts and bruises, irritation, ill health with temporary discomfort).
1	Negligible	Not likely to cause injury or ill health.

Figure 5i: Risk evaluation using a 5x5 risk matrix with corresponding risk prioritisation numbers.

[4] *Risk Prioritisation Numbers (RPNs) are obtained by multiplying the level of "Severity" to the level of "Likelihood" (i.e., RPN = S x L).*

Level	Likelihood	Description
1	Rare	Not expected to occur but still possible.
2	Remote	Not likely to occur under normal circumstances.
3	Occasional	Possible or known to occur.
4	Frequent	Common occurrence.
5	Almost Certain	Continual or repeating experience.

Risk Prioritisation Number (= Severity x Likelihood)	Risk level
1 – 3	Low Risk
4 – 12	Medium Risk
15 – 25	High Risk

Figure 5ii: Risk evaluation using a 5x5 risk matrix with corresponding risk prioritisation numbers.

Using the example of a supermarket workplace setting and hazards identified, the following table shows the associated risk evaluation with the existing risk controls. Note the italics in the table.

Hazard	Existing Risk Controls	S	L	RPN
Prolonged standing postures	Stools for resting when there are no customers.	3	3	9
	Anti-fatigue mats.	3	2	6
	Checks by supervisors for signs of fatigue.			
	More frequent short breaks.			
	Hiring more part-timers or scheduling more cashiers during peak periods.			
Repetitive movements	Counters designed to facilitate packing.	3	3	9
	Checks by supervisors for signs of fatigue.			
	More frequent short breaks.			
	Hiring more part-timers or scheduling more cashiers during peak periods.			
	2 cashiers per counter during busy periods. (1 cashier and 1 packer).			

Table 2: Example of risk evaluation.

6.1.3 Risk Control

Consider embedding WSH into procurement policies as a step to control risks.

Based on the risk level or RPN determined, risk controls should be selected to reduce the risk to an acceptable level. The most effective way to reduce risk would be to tackle the risk at the source. This can be achieved through the elimination of risks or through substitution. For example, workers who manually feed metal sheets to power press machines faced the risk of their hands being caught and crushed by the machines. This risk can be eliminated by fitting an auto-feeder to the machine, which keeps the worker's hands off the machine. Table 3 suggests the acceptability of risk for the different risk levels and the recommended actions.

Risk Level	Rick Acceptability	Recommended Actions
Low	Acceptable	• No additional risk control measures may be needed. • Frequent review and monitoring of hazards are required to ensure that the risk level assined is accurate and does not increase over time.
Medium	Tolerable	• A careful evaluation of the hazards should be carried out to ensure that the risk level is reduced to as low as reasonable practicable within a defined time period. • Interim risk control measures, such as administrative controls or personal protectie equipment (PPE), may be implemented while longer term measures are being established. • Management attention is required.
High	Not acceptable	• High risk must be reduced to at least medium risk before work commences. • There should not be any interim risk control measures. Risk control measures should not be overly dependent on PPE. • If practicable, the hazard should be eliminated before work commences. • Mangement review is required before work commences.

Table 3: Recommended actions for risk levels.

The prioritisation of risk controls and their formulation should consider the relative risks of the different hazards, the costs and benefits of the controls. The residual risk resulting from the implementation of the controls should also be evaluated and should result in a lower RPN.

The following table shows some possible additional control measures for one of the hazard identified in the example for supermarket workplace setting.

Hazard	Additional Control Measures
Prolonged standing postures.	*Self-service checkout counters.* *2-minute stretch for all cashiers before every shift.*

Table 4: Example of risk evaluation.

Controls and solutions should include an element of organisational and environmental measures, such as redesigning the work environment where WSH is included (e.g. adequate and effective ventilation, proper work station design), providing healthier food choices and making safe and healthy practices in the workplace the default option.

Hazards and their controls must be communicated to the employee performing the work activity. The manager who oversees the work area, function or activity where risks exist should ensure that all persons exposed to the risk are informed of it and the associated mitigating measures.

6.1.4 Effective Risk Management

Risk management (RM) at the workplace fosters a proactive culture to prevent accidents and ill health. To ensure safe and healthy workplaces, RM has to be effectively implemented within the workplace. Control measures stated in the risk assessments have to be practical for implementation in the workplace, and any safeguard used must be in good working condition.

For example, companies using hazardous chemicals for cleaning purposes should use chemicals that are less toxic or even non-toxic. In doing so, reliance on personal protective equipment (PPE) as a risk mitigation measure for workers dealing with these chemicals may be reduced or not needed. Complex work procedures to handle hazardous chemicals may also be redundant since less toxic chemicals are used. Risk control is brought upstream (by substituting the toxic chemical with less toxic ones) and reduced at the source. The worker is then able to perform his work safely and be productive at the same time.

Communication is also paramount for RM to be effective. There should be two-way communication between the employers or management and employees. Hazards, risks and their controls must be communicated to the employees at the workplace. Employees should also feedback to their employers or management on the WSH aspects of their work, such as the effectiveness of control measures, and the reporting of near misses, accidents or ill health. Companies can explore various communication platforms such as staff briefings, training, newsletters, meetings, electronic mails, notice boards, tool boxes, etc.

Risk assessments must also be reviewed or revised at least once every 3 years. It must also be reviewed after an accident as a result of exposure to a hazard or when there is significant change in work processes that could affect the safety and health of workers, for example, the introduction of new machinery or chemicals.

For more information on RM, refer to the WSH Council's **Code of Practice on Workplace Safety and Health (WSH) Risk Management** at **www.wshc.sg**. Samples of the completed RA form can be found in Annex C.

6.2 Total WSH Gap Analysis

Companies need to conduct integrated and comprehensive Total WSH Gap Analysis to look for interconnections between the workplace and the worker. To conduct a comprehensive analysis into workplace issues (e.g. accident, ill health, near misses, days away from work), the interconnections among the physical work environment and processes, work organisation and employees are analysed for underlying causes and possible associations with work factors. Comprehensive Gap Analysis also includes looking across similar processes, conditions and situations to look for systemic and underlying causes and also identify threats to the organisation.

In a workplace where employees are involved in machine operations, there was an increase in the number of injuries and near misses reported. A probe into this revealed that many machinists had been working overtime and fatigue was identified as an attributing factor. Further investigations found that the work was poorly scheduled causing machinists to work long hours over certain periods.

Expanding on the machinist example above, fatigue and poor work scheduling would be additional considerations for the RAs of all work activities involving machines. The risk of excessive overtime leading to fatigue and loss of concentration is included in the RA, along with the additional risk controls to reduce this risk. The additional controls could include better work scheduling so that more machinists can be on duty during peak periods. Supervisors could also schedule more short breaks during overtime hours, and observe for signs of fatigue in machinists. Subsequently, further analysis can be performed periodically and the findings discussed at WSH committee meetings, added in to RAs and communicated to affected employees in the workplace.

A Total WSH Gap Analysis comprises seven steps. They are:

i. Data collection;
ii. Baseline analysis;
iii. Employee survey;
iv. Walkthrough survey;
v. Evaluate findings and suggest improvements;
vi. Communicate findings; and
vii. Act on recommendations.

(i) Data Collection

The first step to conducting a Total WSH Analysis is the collation of existing data. Existing data may be collected from the various available sources such as in-house incident reporting systems, aggregated health screening data, diseases and ill health records, near misses and medical leave taken due to illnesses or injuries. Information about the workplace such as the various departments, sections, occupations, and safety and health risks are also collected to ensure a more robust WSH analysis.

(ii) Baseline Analysis

With the data collected, a baseline analysis is performed. One option is to sort the data collected into various groups such as departments, incident locations, work processes, gender, and age groups. This is followed by looking for any patterns or trends in the sorted data. Any detected pattern or trend is then correlated to employee's personal health data such as pre-existing medical conditions and lifestyle habits (e.g. smoking habits, obesity).

The monitoring and measurement of goals, combined WSH, wellbeing and company performance indicators, WSH incident and surveillance data should also be correlated and discussed with production, health, cost and other data for new insights. The data could be presented in the form of dashboards or scoreboards.

(iii) Employee Survey

In the event that data is missing and/ or correlations are difficult to identify, organisations can consider conducting focus group discussions and employee surveys to bridge the gaps. Focus group discussions provide in-depth insights to the issues. The survey can also double up as a baseline for tracking future progress. For example, existing data may not reflect certain health conditions such as back aches and musculoskeletal disorders (MSDs). To bridge this information gap, this organisation can conduct a survey to ascertain the extent and severity of MSDs among employees.

In order to have an understanding of the health profile of employees, companies may opt to conduct periodic health screening for their staff. In addition, a basic health survey may be used to supplement health screening data or as an alternative screening tool. Companies may find use for the Basic Health Survey Questionnaire that is included in Annex E of this guide to conduct this survey.

(iv) Walkthrough Survey

A walk through the work processes is useful to affirm or verify the trends or findings derived from the data analysed. Talking to employees who are on the job may shed more light on the issues on hand. Observations made from the baseline data analysis should be compared with the findings from the walkthrough survey. The walkthrough can also help to verify if risk control measures identified and implemented from the RA is sufficient or effective.

(v) Evaluate findings and suggest improvements

Together with observed outcomes of the RA, results of the Gap Analysis in steps (i) to (iv) could surface findings that may need to be worked on or improved in the organisation. These could be summarised in a report with recommendations for intervention programmes to improve the current state, prioritised based on the needs of the employees. Proposed interventions may cut across various departments of the organisation (e.g. ergonomics) or focus on key "at risk" groups that have similar profiles (e.g. smokers) or employees working in similar departments (e.g. departments that are exposed to a chemical).

Where possible, integrate activities, programmes and solutions to include aspects of the workplace environment, health protection and promotion and individual health risk factors.

(vi) Communicate findings

It is important to communicate the findings of the Gap Analysis to foster collaboration and obtain buy-in from all levels in the organisation. Clear communication and understanding of the findings from all levels of the organisation will help encourage all employees to actively participate in programmes to improve the current situation. Discuss findings at joint platforms where employees, managers, human resource and WSH personnel participate. Some possible platforms to communicate these findings can include the WSH Committee or team and Management meetings.

Consider including and integrating performance indicators for WSH into business plans and reporting.

Establish an open and proactive system to appropriately communicate the types of WSH hazards, risk evaluation and control measures implemented to all levels of staff. Communications should involve both operational and office staff and feedback obtained on the effectiveness of the programmes and any ground issues that may present. Contractors and visitors will also need to be informed. Feedback from all can be used to improve the controls and system.

Also consider consulting and informing contractors of any changes to the WSH system that may affect the services and equipment they provide.

(vii) Act on recommendations

Once the measures, recommendations and/ or solutions have been identified from the recommendations, they should be prioritised, acted upon and implemented.

Workers exposed to organic solvents used as degreasers may develop poisoning or liver problems. Should a workplace, through its Total WSH Gap Analysis of the workforce, find an increased incident rate of poisoning from organic solvents or abnormal liver conditions affecting workers, they should incorporate additional measures through the Total WSH approach such as:

- Perform hygiene monitoring for concentrations of the organic solvents;
- Review the risk assessments of the current process and downstream process where there may be continued exposure to the organic solvents;
- Consider installing local exhaust ventilation. If this has been installed, the effectiveness and maintenance records should be checked; and
- Work with the designated workplace doctor (DWD) to assess the fitness-to-work for exposed workers.

Educate workers on the health effects from exposure to organic solvents including on the liver and the brain. At the same time, combine messages on the health effects of alcohol ingestion on the liver and certain viral infections that may harm the liver. They should be provided training on how to protect themselves from the effects of the organic solvents, alcohol ingestion and viral liver infections.

- In the long run, consider eliminating use of the organic solvents or substitute this with safer chemicals; and
- Provide support to workers with NID and be mindful of initiatives or actions that may be seen as discrimination.

6.3 Learning from WSH Investigations and Incident Analyses

In addition to conducting Total WSH Gap Analysis regularly with RAs, a WSH investigation and incident analysis should be conducted when a workplace incident (including occupational disease or work-related health condition) occurs. When investigating and analysing potential causes for workplace incidents, regardless of whether they are big or small, organisations should keep an open mind and look beyond the incident itself to establish the root and contributory causes, as well as the work-related factors. Some of these factors could be WSH hazards, human factors (e.g. work organisation, fatigue, scheduling, and work load) or individual health conditions.

To maximise the value of such investigations, organisations could consider:

- Sharing learnings from the incidents and near misses at common platforms;
- Involving employees in the solutions; and
- Updating RAs and the management system.

Organisations could then look across at similar processes, conditions and situations and look for the presence of near misses, incidents and ill health. It is important to look for systemic and underlying causes of these challenges in order to conceptualise and implement appropriate solutions to prevent or mitigate the risk.

Other sources of relevant data that could be monitored include:

- Trends in ill health analysed by company medical providers such as clinic attendances, medical leave and sickness absences, and health conditions;
- Trends in incidents, accidents, dangerous occurrences;
- Work injury compensation data;
- Observations from workplace inspections and other related activities; and
- Correlation with trends in hygiene and medical surveillance, where available and relevant.

The results, lessons learnt, and recommendations of the WSH incident investigation and analysis should be communicated at multiple platforms. In addition, the RA and safe work procedures should be updated. Where relevant, targeted intervention programmes should be reviewed or implemented based on the findings and recommendations of the investigation and analysis. For more information on WSH investigations and incident analysis, companies can refer to the **WSH Guidelines on Investigating Workplace Incidents for SMEs** published by the WSH Council. This guideline provides general guidance for incident investigation methods and their related tasks like information gathering, analysis, implementation and review for simple or direct incidents.

7. Intervention Programmes

Based on the RA and Gap Analysis, organisations should prioritise the risks and implement targeted intervention programmes to manage and improve safety, health and wellbeing in the workplace.

Prioritisation of risks can look into the number of employees who are likely to be affected, the severity of the health effects, the demographic composition of the workforce, vulnerable employee groups and so on. Some examples include those taking certain medications, on night or shift work and those with health issues such as epilepsy or Diabetes Mellitus. Looking more closely at the example of employees having Diabetes Mellitus, they may have difficulty taking their medication on time due to variable shift work patterns and/ or lack of proper meal facilities. This may result in poor control of their medical condition, thereby increasing the employee's risk of worsening their condition or developing complications.

Working at heights, injuries from falling objects, moving parts and energised equipment, work in confined space, exposure to high noise and hazardous chemicals are examples of "traditional" workplace safety and health hazards or situations. Guidelines on managing them can be found at WSH Council's website **www.wshc.sg**. Including and integrating a health focus in intervention programmes for traditional WSH risks such as fall prevention, hearing conservation and chemical management would enhance the management of safety and health while making these programmes more relevant to employees. An example is a chemical management programme that integrates training and awareness of the risks of chemical exposure and cigarette smoking, and the impact of one on the other. Another example is an ergonomics programme where manual handling and health risks of obesity are integrated. The following are examples of intervention programmes that a company may put in place.

7.1 Managing Older Workers

More and more employees are choosing to continue work beyond retirement age. As people age, there are gradual changes in physical and mental function. The rate of decline and age of onset would vary from person to person. Some of the common age associated changes include:

- Reduction in physical capacity and endurance;
- Reduction in hearing ability (age-associated hearing loss). Tinnitus, a ringing sound in the ear may also be present;
- Changes in visual perception resulting in the need for higher light intensities and greater contrast especially when reading or doing close work;
- Developments of cataract and other degenerative eye conditions;
- Decrease in the sense of proprioception (sense of position);

- Reduction in mental agility;
- Decline in the heart, circulation, lung, and other organ systems.

It is important to note that the changes do not affect all employees equally and different persons age differently and at different rates.

Organisations who have a larger proportion of mature workers can plan for and put policies and programmes in place to anticipate and prepare for such changes. Employers can consider the following aspects:

- Risk assessments – workplace risk assessments should be reviewed to factor in the possible age-associated changes. Some considerations could include:
  - Ergonomic issues – work activities and tasks should be assessed to ensure that limitations of older employees are catered for in respect of capabilities and muscular strength, static loads, risk of injury and effect of shift patterns and rest periods in relation to fatigue;
  - Shift work – older workers may find difficulty in adapting to shift work as they age. If they are on long term medication, shift work may make it difficult for them to manage their medications.
  - Individual health conditions and factors
  - Job demands matched with health status of the employee
- Age management practices[5] – companies could introduce age management measures to ensure that older employees are fit for new challenges. These measures can also improve their employability.

Having a comprehensive approach to age management goes beyond HR policies and measures alone and includes all aspects of HR from recruitment to employment exit and further encompasses management of WSH risks in the workplace, workplace health promotion as well as factoring in individual health conditions and work ability. Employers should bear in mind that good practices in comprehensive approaches are characterised by:

- an emphasis on preventing age management problems;
- a focus on the entire working life and all age groups, not just older workers;
- a holistic approach that encompasses all dimensions of age management;
- in the short term, remedial provisions for older workers who are already affected by age-specific occupational problems such as skill deficits as a result of deskilling or poor health resulting from heavy workloads.

In addition, a wide variety of integrated measures can be applied such as:

- more flexible working hours combined with health care measures;
- recruitment of younger employees combined with knowledge transfer and preventive health care in a mentoring project;
- an awareness-raising programme conducted in association with advanced corporate training and initiatives to optimise work organisation;
- new concepts of working hour schedules and organisational structures may be linked to the introduction of performance-based wages.

[5] *European Foundation for the Improvement of Living and Working Conditions, 2006. A guide to good practice in age management.* http://www.eurofound.europa.eu/pubdocs/2005/137/en/1/ef05137en.pdf

For financial assistance in improving age management practices, companies can refer to Workpro at **http://www.mom.gov.sg/employment-practices/workpro**.

7.2 Ergonomics and the Prevention of Musculoskeletal Disorders

Workplace risk factors that may contribute to the development of musculoskeletal disorders (MSDs) include heavy lifting and manual handling, forceful exertions, awkward postures, repetitive work, etc. These risk factors, along with personal factors, such as physical limitations or existing health conditions, can lead to MSDs. Pain in the hands, wrists, elbows or shoulders, or low back pain after certain work activities are some signs of early MSDs.

Improving ergonomics in the workplace can prevent MSDs. Good workplace ergonomics aim to fit work tasks, equipment, information and environment to each employee, thereby optimising and enhancing their work capabilities.

A quick way to obtain an estimate of potential ergonomic risks in the workplace is to look for employee feedback or reports of aches and pains in the hands, wrists, elbows or shoulders, low back pain or frequent sickness absence after certain work activities. A survey could also be conducted to obtain information on the current situation in the company.

DO YOU KNOW?

MSDs globally:

- In Europe, MSDs made up 59% of all recognised diseases in 2005
- MSDs accounted for more than 10% of all years lost to disability in 2009 (WHO).
- Work related MSDs represent a third or more of all registered occupational diseases (OD) in North America, the Nordic countries and Japan.
- A sharp increase in numbers of MSDs from 1,634 in 2001 to 5,502 in 2010 (Korea).
- In UK, MSDs made up 40% of all work-related diseases in 2011-12.
- In Singapore, employee surveys showed a prevalence of MSD symptoms ranging from 68% (hotel employees, 2002) to 39% (logistics industry, 2004). The number of work-related MSD cases have increased from 4 cases (2010) to 6 cases (2011) to 23 cases (2013), becoming the 3rd most common Occupational Disease.

For more information on improving ergonomics in the workplace, you may refer to the **WSH Guidelines on Improving Ergonomics in the Workplace** published by WSH Council. The following Singapore Standards may also be referenced:

- SS 569: 2011 Code of Practice for Manual Handling
- SS 514: 2005 Code of Practice for Office Ergonomics

A simple interactive mobile application (app) developed by the WSH Institute, **ergo@WSH**, which identifies and addresses ergonomic issues related to employee's posture at the workplace, is available for download in both the iTunes App Store and Google Play.

7.3 Managing Work-Related Stress

Many employers may not realise that the way that work is organised has an impact on the stress experienced by employees. Improving how this can be managed together with better communication may reduce the psycho-social risks in the company. One useful reference employers can turn to is a set of guidance available from the Health and Safety Executive (**www.hse.gov.uk**) known as the **Management Standards for Work-Related Stress** and advice from the International Stress Management Association (**http://www.isma.org.uk**).

The Management Standards mentioned above define the characteristics, or culture, of an organisation where the risks from work related stress are being effectively managed and controlled. They:

- Show what is good practice through a step by step risk assessment approach;
- Allow assessment of the current situation using surveys and other techniques;
- Promote active discussion and working in partnership with employees to help decide on practical improvements that can be made;
- Help simplify risk assessment for work related stress by:
  - identifying the main risk factors for work related stress;
  - helping employers focus on the underlying causes and their prevention; and
  - providing a yardstick by which organisations can gauge their performance in tackling the key causes of stress.

The standards also describe six key areas of work design that are associated with good health and wellbeing, improved productivity and reduced sickness absence. In other words, they cover the primary sources of stress at work if not properly managed. They are:

- Demands – this includes issues such as workload, work patterns and the work environment;
- Control – how much say the person has in the way they do their work;
- Support – this includes the encouragement, sponsorship and resources provided by the organisation, line management and colleagues;
- Relationships – this includes promoting positive working to avoid conflict and dealing with unacceptable behaviour;
- Role – whether people understand their role within the organisation and whether the organisation ensures that they do not have conflicting roles; and
- Change – how organisational changes (large or small) is managed and communicated in the organisation.

In addition, employers can put employee assistance programmes in place to build employee resilience in coping with mental health issues at work. More information can be found at **www.hpb.gov.sg**

7.4 Absence Management

Research has found that work is good for health as the workplace setting provides opportunities for personal growth, social development, and health promotion. From the employer's perspective, taking actions to improve the health of employees allows them to hold on to valued employees, retain a healthy workforce, improve productivity, reduce unnecessary recruitment and training costs, and improve workplace relations.

Absence from work due to illness and injury, commonly called "sickness absence", can be measured in many ways. Minimally, most employers would keep track of the number of days away from work. This lost time can be analysed for short term and long term impacts to understand the likely causes of ill health, injury and time away from work. Patterns of absence, root causes and contributory factors to sickness absence should also be analysed together with work factors. To supplement recording of sickness absence, employers may also consider conducting periodic surveys to understand the basic health risk profile of their staff and correlation with work factors. The result of the analysis should be shared periodically at common platforms. Once the nature and extent of the problem is known, simple, and effective mechanisms can be put in place to manage it.

Examples of such surveys can be found at HPB's website, **www.hpb.gov.sg**. Alternatively, you may use a Basic Health Survey Questionnaire that is included in Annex E of this guide.

When putting a plan to manage sickness absence, it is important to remember that

- sickness absence is influenced by many factors including combinations of personal belief, social circumstances and work factors;
- good management with timely intervention is the key to reducing long term absence and incapacity from work;
- early access to relevant services (such as physiotherapy and occupational rehabilitation) is of prime importance in minimising time away from work;
- research has shown that work is good for health and returning to work after illness or injury is part of the recovery process. If phased return to work is properly supervised, employees are able to return to work safely; and
- good communication between the employee, line manager, human resource, WSH personnel and medical and health professionals is an important pillar of the plan.

7.5 Preventing Chronic Diseases

Chronic diseases are long term health conditions that require regular medical follow up to ensure the employee's health is stable. Some common conditions include high blood pressure, Diabetes Mellitus, chronic heart conditions, chronic lung conditions and so on. Conditions such as Diabetes Mellitus, high blood pressure, heart disease, etc may affect the physical and health condition of the employee. This in turn may affect the individual's ability and capacity to work, for example, reduced lung capacity in persons with chronic lung conditions or reduced peripheral vision in those with Diabetes Mellitus. As employees spend at least 8 hours or more in the workplace, assistance from the organisation to prevent and manage chronic diseases will help improve the health of the employee.

Manual handling and heart problems

Mr NR was a 58-year-old male working as a coach driver. His job was to ferry airline crew between the airport and their hotel and help with the carriage, loading and stowage of the luggage of the crew from the kerbside onto the luggage compartment of his coach at the start of each journey and to do the converse when he reached his destination. He would typically ferry a crew of between 15 and 20 members, with at least two bags each. Each bag tended to weigh between 10kg and 30kg or more. He typically had to load and unload all the luggage on each trip with little, if any, assistance.

On one of his duties in 2004, he started work at about midnight and made a number of trips ferrying crew and luggage between hotels in the city and the airport. He suddenly felt uncomfortable after loading bags at the airport on one of these trips. A few hours later in the early morning, while carrying a piece of luggage to the luggage compartment of the coach, he felt breathless and was unable to continue with his work. An ambulance was called and he was brought to a nearby hospital where he was pronounced dead soon after.

He was later found to have that he had sustained a heart attack but the effects of this were superimposed on one he had suffered previously. It was also learnt that some of the major coronary blood vessels were already severely narrowed prior to his death. He was therefore not in good health to begin with.

Carrying such heavy loads repetitively may be an ergonomic hazard. Drivers who smoke and/ or have existing heart disease may have reduced physical capacity when performing these manual handling tasks. Heart disease can be silent and may only manifest in a heart attack which may be triggered by this manual activity.

The first step to help these drivers prevent the development of heart disease is for them to go for regular health screening and the risk factors or chronic diseases prevented or managed to reduce their heart attack risk. They should also be trained in proper handling techniques to reduce their ergonomic risk. In the long run, buses / coaches can be designed so that luggage can be stowed with minimum effort. Heavy luggage can be identified so that 2 persons lift them.

Elements of a prevention programme could include:

- Identification of health risk factors
  - Regular screening programmes for health risk factors can be conducted to identify employees with health risk factors for chronic disease. The tests done should be evidence based and guidance should be based on HPB's recommendations at **www.hpb.gov.sg** or **Ministry of Health** at **www.moh.gov.sg**;
  - Confidentiality of the individual's medical results should be assured;
  - Analyses of such results on a grouped basis should include information on work factors, departments, WSH risks, etc;
  - Such reports using grouped data should be shared across and within the organisation at common platforms;
  - Targeted intervention programmes should be put in place to address the risks at an organisational level;
  - Interventions that integrate health risk factors with WSH risks for control measures, training and awareness are recommended.
- Prevention and Intervention:

  The workplace can be designed and enhanced so that working safely and healthily is the default or usual option. Measures can be grouped into 3 broad categories:
  - Workplace and environmental measures:
    a. reviewing the work organisation;
    b. reviewing workstation design so that the work itself is intrinsically safer;
    c. reviewing WSH risks to reduce risks;
    d. providing environmental cues so that healthier options are the default option;
    e. offering healthier choices cheaper than unhealthy food in the canteen;
    f. Creating attractive spaces so that employees walk instead of taking lifts.
  - Education and awareness:
    a. integrated health and information messages on WSH risks and health, e.g. chemicals and smoking, weight and manual handling;
    b. Training and education of employees on the risk factors and what they can do to manage them. Training and awareness on health risk factors and WSH risks need to be tailored to meet the needs of different groups in the workforce.
  - Programmes:
    a. Where relevant and applicable, the risk assessment and control measures may have to be reviewed to include the results of the health screening on a broad level;
    b. Employees found to have abnormal results are encouraged to attend medical follow up consultations for further evaluation;
    c. Fitness for work may have to be reviewed;
    d. Based on results of the health risk assessment, intervention programmes for health risk factors can be made available, such as smoking cessation, weight management and so on;
    e. Review the risk assessment factoring in the effect of the health condition on the work and the work on the health. Evaluate whether modifications to the work are required.

Having healthy workers can result in increased productivity and a positive culture in the workplace. To find out more about cancer, common chronic diseases and the key risk factors, refer to Annex D. More resources on workplace health promotion and how it can be implemented can also be found on the HPB's website **www.hpb.gov.sg**.

7.6 Return to Work

Employers may put in place a return to work programme to help injured workers return to work. A case manager could be the central liaison point to coordinate, manage and optimise return to work. He/ she could come from the human resource department or the organisation's occupational health department. The case manager would coordinate care and return to work as part of a team approach that may straddle across organisations.

Having such a case manager provides the employee, their manager and health professional, opportunities to discuss the care plan in a neutral setting. In addition, underlying or ongoing problems and the employees' challenges in managing any chronic illness can be articulated. The types of support needed can be identified and activated, such as physiotherapy, occupational therapy and rehabilitation including occupational rehabilitation and so on. In cases of injury or MSDs, early entry into a return to work programme will shorten the time away from work and allay employees' concerns on their ability to work.

A return to work plan can be established with inputs from the employee, line managers, and medical and health professionals. Elements should include the level, type and frequency of interventions and services needed, including any psychological support. The plan could also identify if the following are needed:

- A gradual or phased return to the original job using staged increase in hours and days worked;
- A return to partial duties of the original job or temporary/ permanent redeployment to another job;
- Adjustments or modifications to the workplace or job to assist the return to duties.

It is important to be flexible and treat each case in a fair and consistent manner. Have regular discussions with the employee and the health professionals on barriers, progress of treatment, their concerns and medications that may affect their work.

8. Performance Measurement and Monitoring

Performance measurement and monitoring are essential to verify and ensure that the various intervention programmes are correctly implemented and effective. It involves the measurement and monitoring of various indicators, results of investigations and preventive actions, and review at the senior management level.

The team that is performing these functions should comprise employees, management, human resource, and WSH professionals. Active feedback and participation from employees is encouraged. The team should also ensure that corrective actions are implemented for areas that are identified for improvement.

Measuring and monitoring indicators and trends help the company evaluate whether the holistic approach to WSH is working and whether there are additional benefits to the health of the company. Measuring and monitoring data gives the company an idea of improvements and progress of their WSH performance and improvement. Companies need to proactively critique their own programmes for gaps and continually find ways of improving WSH and the health of their employees.

Some tips from the "SafeWell" project at the Center for Work, Health and Wellbeing in the Harvard School of Public Health are useful[6].

Companies can evaluate for:

(i) Accountability

This basic evaluation assesses whether the program implemented has:

- resulted in the desired changes;
- achieved goals and/ or objectives or;
- made progress toward meeting such goals.

(ii) Decision making

In order to make decisions, management would want to evaluate based on data that allows them to:

- Understand the costs and benefits of programmes and determine cost-effectiveness;
- prioritise goals and objectives; and
- balance the needs and demands at the workplace.

(iii) Improvement

Once the programmes or initiatives are implemented, ongoing analysis of data can often point to barriers, opportunities, and other process-related issues affecting programmes and which may impact improvement.

[6] *SafeWell Practice Guidelines: An Integrated Approach to Worker Health. Version 2.0 http://centerforworkhealth.sph.harvard.edu/sites/default/files/safewell_guidelines/SafeWellPracticeGuidelines_ExecutiveSummary.pdf*

(iv) Surveillance

Long term and ongoing surveillance of workplace trends and the health of workers, or discovery of new knowledge, may require specialist inputs and expertise.

In order to have an understanding of the status and effectiveness of the intervention programmes and activities and the impact on the health of the organisation, companies should identify indicators to be measured, monitored and reported on a regular basis to the WSH committee as well as to senior/ top management. Both proactive (leading indicators) and reactive (lagging) indicators should be measured. Proactive indicators are those which indicate that risk is not controlled and preventive action to be taken. Reactive indicators are those which are based on incidents or ill health. Companies would prioritise which indicators to monitor depending on the maturity of WSH in their company. Some of these indicators may include qualitative and quantitative indicators on:

- Whether the programmes implemented are on track and achieve their purpose. Both process and outcome indicators need to be developed and monitored;
- Hazard exposure monitoring trends (environmental and biological levels where relevant);
- Individual risk reduction behaviour;
- Incident and ill health rates and trends;
- Workplace health screening and prevention programmes;
- Use of inspection findings, incident investigations and preventive actions, internal and external audit reports;
- Training – participation, effectiveness, competency;
- Communication, organisational climate and perception surveys;
- Costs of incidents and ill health, compliance and return on investment of programmes;
- Production figures, quality, rejection or re-do rates, other relevant indicators and measures;
- Benchmarking with industry best practices.

Analysis and reporting of the data can be presented in many forms such as a scorecard, matrix or strategy map. This helps companies to see key data at a glance. All employers should identify the key data that are important to the company. Broad areas that could be reported could include:

- Workplace safety and health;
- Workplace health promotion;
- Human resources;
- Corporate data, such as production output, revenue, profit, stock and share performance, etc.

Look for opportunities to improve together with active participation from employees. Find out if the health of the employees or organisational factors may have contributed to the incident. Share the findings and improvements. Update the risk assessment or management system if necessary.

9. Total Workplace Safety and Health Review

Following performance measurement of implemented intervention programmes, the Total WSH performance of the organisation needs to be evaluated and reviewed regularly to look for opportunities for improvement and address gaps in the Total WSH system. This evaluation and review can be done concurrent with existing review processes. All sources of data should be reviewed including process and outcome indicators. Recommendations from RAs, Total WSH Gap Analyses, incident investigations and review of the system should be evaluated and prioritised for implementation. Intervention programmes that have positive outcomes should be assimilated into the Total WSH system of the company to make it a permanent.

The areas that can be reviewed include WSH and WHP performance, WSH policy and objectives, availability of resources and elements and programmes in the management system. Results of the reviews and actions planned should be shared across the organisation after due consultation.

To gather fresh ideas and improve the current system, share and learn from others such as companies that had been successful in integrating or developing a holistic approach.

10. Tools and Resources

A list of tools and resources is described in this chapter which companies may refer to for specific workplace safety and health hazards. This is not an exhaustive list and organisations are encouraged to refer to the relevant websites for more details.

(i) WSH Legislation

The Workplace Safety and Health Act (WSHA) is an essential part of the new framework to cultivate good safety and health habits in all individuals so as to engender a strong safety and health culture in our workplace. It emphasises the importance of managing workplace safety and health proactively by requiring stakeholders to take reasonably practicable measures to ensure the safety and health of workers and other people who are affected by the work being carried out.

The Workplace Safety and Health Act came into effect on 1 March 2006 and covers all workplaces. A workplace is any premises where a person carries out work or is to work.

For more information on WSH legislations, see:
http://www.mom.gov.sg/legislation/occupational-safety-health

(ii) Risk Management

Risk assessment is the process of identifying safety and health hazards associated with work, assessing the level of risks involved, and prioritising measures to control hazards and reduce risks.

For more information on the steps of risk assessment and relevant documents and templates, see: **https://www.wshc.sg/wps/portal/riskManagement**

(iii) Workplace Health Promotion (WHP)

For more details on WHP programmes, funding and grants can be found at Health Promotion Board's website at **www.hpb.gov.sg**.

(iv) Guidance Materials

The WSH Council publishes Approved Codes of Practices, Compliance Assistance Checklists, Fact Sheets, Guidelines and Technical Advisories to provide guidance on recommended safety and health practices. To view the guidelines and publications, visit the WSH Council website at **www.wshc.sg** and click "Resources".

(v) Cost-Benefit Calculators

Cost benefit calculators are useful to assess returns of investment for Total WSH activities and interventions. Some cost-benefit calculators and cost-effectiveness calculators can be found at the following links:

- **Guidance on Preparing a Simple OHS Business Case** published by the Australian Safety and Compensation Council

  http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/225/GuidancePreparingSimpleOHSBusinessCase_2007_PDF.pdf
- **Make the Business Case for Investing in Occupational Safety and Health** presented by the International Organisation of Employers

  http://www.internationalsosfoundation.org/?wpfb_dl=8
- **The Health & Safety Smart Planner** developed by the Institute for Work and Health based in Canada.

  http://www.iwh.on.ca/smart-planner
- **The Cost Benefit Analysis (CBA) checklist** published by the Health and Safety Executive, UK

  http://www.hse.gov.uk/risk/theory/alarpcheck.htm

11. Acknowledgements

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- Institute for Work and Health (IWH), Canada
- International Commission on Occupational Health (ICOH)
- International Labour Organisation (ILO)
- International SOS Foundation
- International Stress Management Association (ISMA)
- Ministry of Health (MOH), Singapore
- Singapore Medical Council (SMC)

12. Annexes

12.1 Annex A – Total WSH Checklist

This non-exhaustive checklist is developed as a guide to help companies determine and verify if the various elements of Total WSH is in place in the company by ticking the corresponding boxes (Yes/ No) for each item. The Reference column describes the corresponding section where the definition and description of each item can be found.

Focus Area	Items	Yes	No	Actions/ Remarks	Reference
WSH Committee or Team	1. Team composes of members from different disciplines[7].				Section 5
	2. The scope of the Team covers health, safety and wellbeing of all workers achieved through a proactive and integrated process.				Section 2 Section 3
	3. The Team reports to senior management i.e. single reporting channel for WSH matters.				Section 4 Section 5
	4. Clear roles & responsibilities are assigned to the Team.				
	5. The Team follows a schedule of meetings.				
	6. The Team has set performance management indicators and targets.				Section 8

[7] *Such as Workplace Safety and Health Officers, HR managers, Workplace Health Promotion Consultants, Organisational Psychologists, Designated Workplace Doctors, Nurses, Industrial Hygienists, Professional Engineers*

Focus Area	Items	Yes	No	Actions/ Remarks	Reference
Risk Management	1. Hazards have been identified for each of the areas below. 				Section 6.1.1 Section 6.2 Annex C
	2. Risk has been evaluated (via a severity vs. likelihood matrix; classified as low/ medium/ high)				Section 6.1.2 Annex C
	3. Risk controls have been implemented.				Section 6.1.3 Section 6.1.4 Annex C
	4. Risk control measures have been communicated to all affected staff.				
	5. Risk monitoring activities e.g. regular medical examinations, inspections, hygiene monitoring.				
Total WSH Gap Analysis	6. Data Collection.				Section 6.2 Section 6.3
	a. Safety records (incidents and near misses, unsafe acts, unsafe conditions).				
	b. Occupational diseases.				
	c. Health status e.g. hypertension, diabetes mellitus, high cholesterol levels, obesity and lifestyle practices e.g. smoking.				
	d. Sickness absence.				
	e. Employee satisfaction/ engagement levels.				

Focus Area	Items	Yes	No	Actions/ Remarks	Reference
Total WSH Gap Analysis	f. Turnover rate/ numbers.				
	g. Focus group discussions.				
	h. Findings from walkthrough survey.				
	7. Data Analysis to identify priority areas for intervention.				
	a. Trend analysis of items 6 (a) to (g).				
	b. Benchmarking (targets/ milestones to achieve).				
	8. Identify areas for improvement.				
	9. Communicate findings to all employees.				
Programme Implementation and Review	1. Prioritise areas for improvement and decision on recommendations.				Section 6.2 Section 7
	2. Implement priority recommendations.				Section 7 Section 10
	a. Programme Planning and execution via in-house, outsourced or mixed approach.				
	b. Set and track performance management indicators (reference from baseline data, trend analysis & benchmarking) such as:				Section 8
	i. Corporate indicators.				
	ii. Work-related health status, general health status and lifestyle risk factors.				Annex E
	iii. Safety (leading and lagging indicators).				Section 8
	3. Review regularly (e.g. once every 3 years) for				Section 9

12.2 Annex B – Organisation and Scope of Service Providers

In implementing Total WSH in an organization, WSH and WHP consultants and service providers can assist employers in managing all WSH risks holistically by providing expertise in areas where the WSH Committee or team is not familiar with or less competent in, help by identifying all WSH risks in a proactive and integrated way with the active participation from employees and can also assist employers in promoting health and wellbeing of all employees in the workplace.

(i) Organisation of Service Providers

Total WSH can be supported in an organization by in-house experts, outsourced or be a combination of both. In general, services to complement Total WSH implementation can be organised in 2 ways.

The first way describes Total WSH implemented mainly through in-house WSH and WHP professionals in the company and supplemented by specialist WSH and WHP service providers. The degree of outsourcing in companies varies and could range from very comprehensive to basic depending on the maturity of the company.

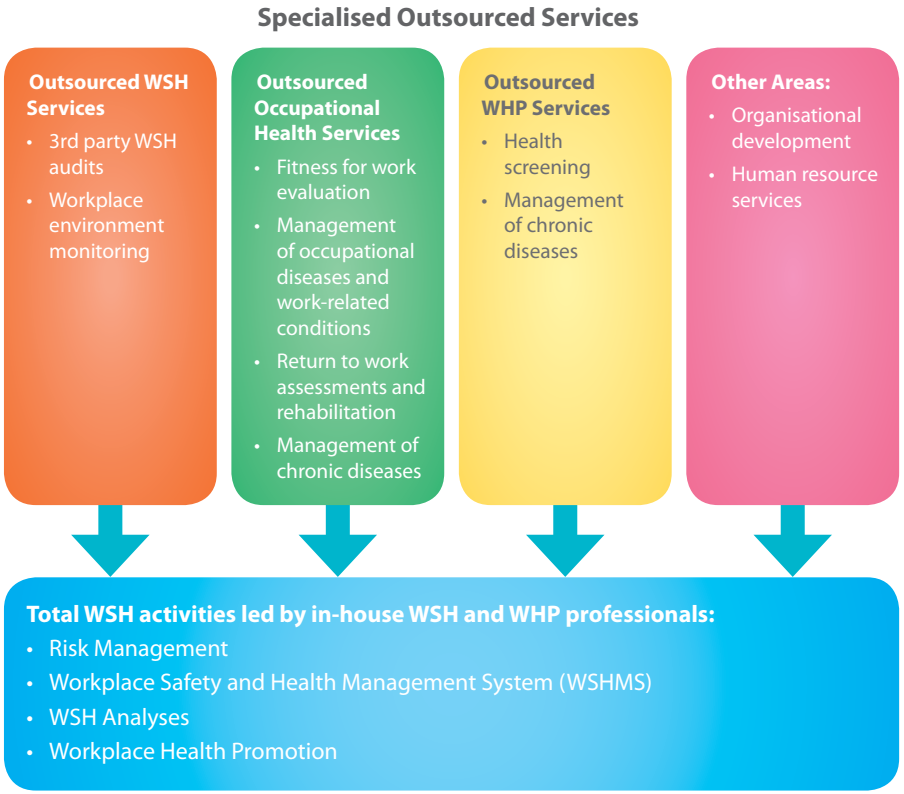


Figure B1: Delivery of Total WSH through in-house professionals and outsourced service providers.

The second way that Total WSH is implemented in a company is through service providers. Outsourced WSH and WHP service providers play the predominant role in the implementation of Total WSH in a company. WSH and WHP representatives in the company take advice and guidance from the service providers. Total WSH implementation could also be done through a multidisciplinary service provider with competency in management consultancy located in an industrial or business park. For example, in Figure B2, a Total WSH Centre can be set up in an industrial park cluster to provide holistic WSH services and advise on Total WSH to companies in the cluster.

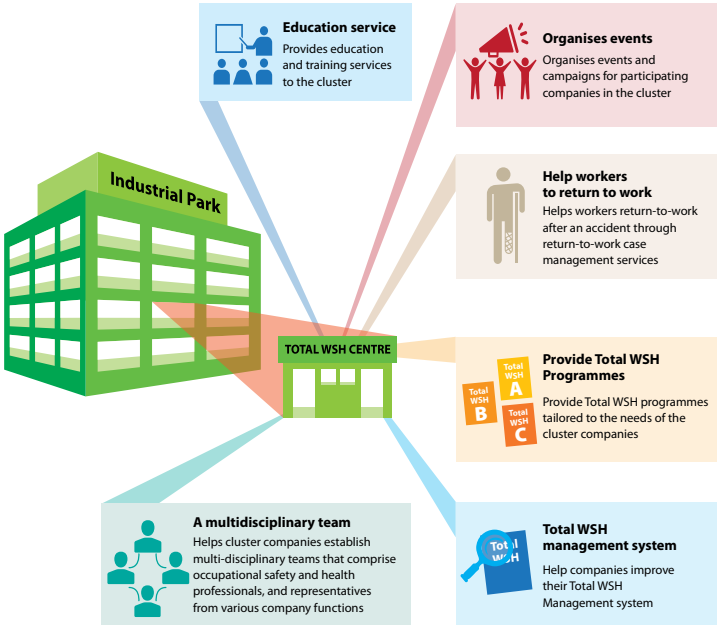


Figure B2: Delivery of Total WSH through a multidisciplinary service provider in a business centre.

(ii) Scope of Service Providers

The range of services consultants may provide would vary depending on the needs of the company and the nature of the risks present. The range of such services could include the following but is not limited to:

- Management Consultancy:
  - Policy setting;
  - Programme management;
  - Total WSH Gap Analysis:
    - Analysis and review of statistics, including:
      a. rates of sick leave;
      b. workplace-related injuries and illnesses;
      c. short and long – term disabilities;

d. workplace monitoring results;
e. personal health statistics;

- Programmes to address WSH gaps;
- Monitoring and surveillance of programmes implemented;
- Change management in implementing integration of activities and programmes related to Workplace Safety and Health, Workplace Health Promotion, data collection, benefits design, behavioural health, absence management, disease management.

- Integrated and comprehensive advice and assistance on Total WSH:
  - WSH hazard identification including personal risk factors, risk evaluation and control measures and programmes;
  - WSH incident investigation analysis;
  - Workplace environment monitoring and surveillance;
  - OSH Management system;
  - Preventive programmes for workplace health, safety and wellbeing;
  - Management of:
    a. Occupational diseases and work-related conditions;
    b. Chronic diseases;
    c. Fitness for work evaluations;
    d. Return to work and rehabilitation;
  - Work Adjustments and job redesign;
  - Education and training;
  - Emergency response planning and first aid;
  - Improving and extending work ability;
  - Improving management of human capital.

Given the wide area of knowledge and expertise required, Total WSH service providers should comprise multidisciplinary experts that include workplace safety officers, occupational health nurses, occupational hygienists, designated workplace doctors, occupational physicians, toxicologists, construction engineers, safety engineers, organisational psychologists, workplace health promotion consultants and service providers, persons with a specialist diploma in workplace health promotion, etc. Service providers should be able to provide expert and/ or technical advice on both WSH and WHP topics to employers to assist them in implementing activities and programmes to support a holistic WSH approach.

WSH and WHP consultants and other like service providers could group together to form multidisciplinary teams that are able to address all safety, health and wellbeing issues in an integrated manner. At the strategic level, they could also provide management consultancy services to help organizations improve their WSH performance through comprehensive gap analyses and development of action plans. Employers may find that using their expertise in organisational change management, coaching, process analysis, technology implementation, strategy development or operational improvement services may help smoothen the transition to new approaches and programmes.

Service providers should also be familiar with the various grants or funding schemes that companies can tap on for workplace safety, health and wellbeing.

(iii) Management of Service Providers

Companies may need to engage service providers and/ or consultants to provide WSH consultancy services to areas of expertise not available or unfamiliar to the organisation or to run intervention programmes or health screening exercises for the organisation.

Selecting WSH Service providers/ consultants

Employers could check if the WSH service provider/ consultant:

- Has competencies across workplace safety, occupational health and workplace health promotion and management consultancy:
  - Ask what the knowledge and qualifications, experience, competencies and skills they have;
  - Ask if they are licensed or accredited with relevant organisations or authorities or professional bodies where relevant;
  - Ask if the consultants/ professionals offering the services are familiar with the health needs, workplace hazards, risks, processes and controls of the operations in your industry sector;
  - Ask for consulting experience especially in change management. Additional expertise in process analysis, strategy development and operational improvement services would be an advantage;
  - Ask how the consultants keep up to date with developments in their areas of specialisation.
- Has a good track record. Ask:
  - if they have done previous similar projects or roles;
  - about their experience and results of past projects;
  - if the team has a system to ensure quality of services delivered.

Managing WSH Service providers

Employers could manage the services delivered by the service providers by:

- Agreeing on the types and scope of services to be provided upfront;
- Discussing the details of the project they are given;
- Having clear oversight of their services;
- Inviting them to give comments to and update the common team or committee dealing with comprehensive and integrated WSH in the company;
- Monitoring the agreed outcomes on a regular basis;
- Ensuring they achieve the holistic WSH outcomes desired.

Companies that are able to manage WSH service providers effectively would find that they are able to value add and improve on WSH in their workplace.

12.3 Annex C – Sample Risk Assessment Forms

Sample 1: Cashiers working at the checkout counter for a supermarket or department store.

Hazard Identification				Risk Evaluation				Risk Control						
Ref	Work Activity	Hazard	Possible injury/ ill health	Existing risk controls	S	L	RPN	Additional Controls	S	L	RPN	Implementation Person	Due Date	Remarks
1	Perform cashier's duties (cash and card transactions).	Prolonged standing postures. Excessive overtime: Fatigue may cause loss of concentration.	Lower back pain. Musculo-skeletal Disorder (MSD). Older workers may have increased incidence of lower back pain/ MSD.	Stools for resting when there are no customers. Anti-fatigue mat. *Checks by supervisors for signs of fatigue.* *More frequent short breaks.* *Hiring more part-time or scheduling more cashiers during peak periods.*	3 3	3 2	9 6	Self-service checkout counters. *2-minute stretch for all cashiers before every shift.*	3	1	3	Manager *HR Personnel, Retail Supervisors*		
2	Packing paid items in bags.	Repetitive movements. Excessive overtime: Fatigue may cause loss of concentration.	Musculo-skeletal Disorder (MSD). Older workers may have increased incidence of MSD.	Counters designed to facilitate packing. Checks by supervisors for signs of fatigue. More frequent short breaks. Hiring more part-time or scheduling more cashiers during peak periods. 2 cashiers per counter during busy periods (1 cashier and 1 packer).	3 3	3 2	9 6							

Sample 2: A worker is tasked to prepare and mix raw materials for solvent-based paints. The raw materials used are powder pigments and liquid solvents which are scooped or poured into containers and weighed. The weighed raw materials are then transferred into a mechanical mixer.

Hazard Identification				Risk Evaluation				Risk Control						
Ref	Work Activity	Hazard	Possible injury/ ill health	Existing risk controls	S	L	RPN	Additional Controls	S	L	RPN	Implementation Person	Due Date	Remarks
1	Weigh pigments.	Excessive manual handling.	Musclo-skeletal Disorders (MSD). Older/ obese workers may have increased incidence of MSD.	SWP, training	3	3	9	Spring-loaded work platform for weighing. Periodic health screening for obesity-related chronic diseases.	3	2	5	Procurement Officer, Engineering Dept Supervisor HR Personnel		
		Excessive inhalation of particulate matter.	Chronic diseases. Smokers: increased incidence of lung diseases.	SWP with pictures, respirators, training, impervious gloves, medical surveillance.	4	3	12	Quit smoking programme, more frequent medical surveillance for smokers.	4	2	8	HR Personnel		
2	Pour raw materials (weighed pigments & liquid solvents) into mixer.	Excessive manual handling.	Musclo-skeletal Disorders (MSD). Older workers may have increased incidence of MSD.	Training on proper lifting methods. Job scheduling and rotation with other operators to reduce prolonged repetitive movements and static postures.	3 3	4 3	12 9	Mechanical lifting aids.	3	2	6	Procurement Officer, Engineering Dept Supervisor		
		Flammable vapours in air.	Fires and/ or explosions. Fatalities, injuries, eardrum rupture, burns, cuts and lacerations by flying fragments.	LEL detectors interlocked with fire alarms and sprinklers. Explosion vents, blast walls, bonding and grounding of mixer.	5	2	10	Visual alarms for employees with NID.				Facilities and WSH Personnel		
		Excessive exposure to dust and solvents.	Chemical poisoning. Smokers: increased incidence of lung diseases.	SWP with pictures, respirators, training, impervious gloves, medical surveillance. Housekeeping programme.	4	3	12	Local exhaust ventilation with periodic maintenance. Quit smoking programme, more frequent medical surveillance for smokers	4	2	8	Procurement Officer, Engineering Dept Supervisor HR Personnel		
3	Operate mixers.	Excessive noise. Noise levels may travel to QA process in the vicinity.	Work-related Noise Induced Deafness (NID).	Hearing conservation programme.	4	3	12	Noise barriers between mixing area and QA area.	4	2	8	Procurement Officer, Engineering Dept Supervisor.		Measure noise levels at QA area.
		Limbs caught in moving parts of mixer. Excessive overtime: Fatigue may cause loss of concentration.	Permanent or temporary disability.	Limit switch allows agitator to move only when cover is closed. Checks by supervisors for signs of fatigue.	4 4	3 2	12 8							

12.4 Annex D – Cancer and Common Chronic Diseases

(i) Cancer

The term "Cancer" refers to a group of diseases described by the uncontrolled multiplication of cells in our body to form a growth or tumour[8]. Tumours can spread to nearby tissues and organs as well as to other parts of the body. Cancer kills by:

- Destroying important organs;
- Disturbing normal body functions;
- Blocking important blood vessels or air passages.

Cancer is the leading cause of death in Singapore. If cancer is detected early enough through screening, treatment can start sooner to avoid complications, suffering and death.

The five most common types of cancer in Singapore are:

Most frequent cancers in Males	Most frequent cancers in Females
Colorectal	Breast
Lung	Colorectal
Prostate	Lung
Liver	Uterus
lymphoma and leukaemia	Ovary

Table 5: Most frequent cancers, 2008 - 2012. Source: Trend in Cancer incidence in Singapore interim report 2008-2012, National Registry of Diseases Office, Ministry of Health

[8] *Health Promotion Board. 2012. What is cancer. http://www.hpb.gov.sg/HOPPortal/health-article/2354*

Certain medical conditions may increase risk of developing some cancers. For example, people who are carriers of the Hepatitis B virus are more likely to develop liver cancer. Women infected with certain sexually transmitted infections have a higher chance of getting cervical cancer. Some cancers (like breast and colorectal cancers) tend to run in families. Persons with family member who has been diagnosed with some form of cancer should see a doctor to get screened. The doctor will recommend the type of screening tests and frequency, as well as more specific diagnostic tests if the results are abnormal.

Many cancers develop because of lifestyle habits such as smoking, excessive drinking of alcohol or eating too much fat (especially animal fat). Others are caused by factors in the environment and workplace such as sunlight, radiation and some industrial chemicals. By leading a healthy lifestyle and avoiding certain risk factors, about one-third of all cancers can be prevented from occurring.

(ii) Chronic Diseases

Chronic diseases are long term health conditions that require regular medical follow up to ensure the employee's health is stable. Some common conditions include hypertension (high blood pressure), diabetes, chronic heart conditions, lipid disorders (high blood cholesterol) and chronic lung conditions. These conditions not only affect the physical health of the employee; they may also affect the individual's ability and capacity to work, for example, reduced lung capacity in persons with chronic lung conditions or reduced peripheral vision in those with diabetes. As employees spend at least eight hours or more in the workplace daily, assistance from the organisation to prevent and manage chronic diseases will help improve the health and work ability of the employee.

Employees who have chronic conditions should be advised to see their doctors for follow-up regularly and take their medications as prescribed.

Lipid disorders

Lipid disorders, such as high blood cholesterol, are a group of medical conditions which refer to excessive levels of fatty substances in the bloodstream. These fatty substances include cholesterol and triglycerides. There are two types of cholesterol: High Density Lipoprotein (HDL) Cholesterol and Low Density Lipoprotein (LDL) Cholesterol. HDL Cholesterol is commonly known as good cholesterol. It removes excess cholesterol and may prevent cholesterol build up in the blood vessels and lower risk of heart disease. LDL Cholesterol is often called bad cholesterol. It can block up arteries resulting in the hardening and narrowing of arteries (atherosclerosis). This can lead to slowing down or blockage of the flow of blood, resulting in angina (chest pain) and heart attacks, stroke or peripheral artery disease (narrowing of the blood vessels of the limbs). Apart from genetic causes of lipid disorders, diet high in fats will also increase cholesterol.

A fasting lipid blood test at 40 years of age is recommended for individuals with no risk factors (e.g. Family history, diabetes). If the blood test is normal, screening should be continued once every 3 years. Individuals with risk factors should start screening for lipid disorders earlier, in consultation with a doctor.

Lipid disorders are usually picked up during screening or during routine blood tests for other medical conditions. Otherwise, they may only be diagnosed when the complications arise e.g. angina, heart attacks or stroke.

Diabetes

Diabetes Mellitus, or simply diabetes, is a long term condition in which the blood glucose levels of a person remain persistently higher than normal. It occurs when the pancreas does not produce enough insulin (hormone which allows body to use blood glucose for energy) or when the body cannot effectively use insulin. Age and family history of diabetes increases one's risk of diabetes; unhealthy diet and lack of exercise are major factors for diabetes in Singapore. Uncontrolled diabetes can lead to serious complications. The risk of developing diabetes can be reduced or delayed by leading an active and healthier lifestyle.

The common symptoms of diabetes include frequent thirst despite drinking lots of water, constant hunger and tiredness, itchy skin especially around the genital area, passing

excessive urine during day and night, weight loss despite good appetite and poor healing of cuts and wounds. In the long run, uncontrolled diabetes can lead to coronary heart disease such as angina, heart attack, stroke, eye disease, kidney disease, foot disease such as numbness, ulcers and even gangrene.

Hypertension

Hypertension or high blood pressure refers to the condition in which the blood is pumped around the body at too high a pressure. Obesity and diabetes increase the chance of developing hypertension.

Hypertension, even when severe, may not give rise to any symptoms. If untreated or inadequately treated, it can cause coronary heart disease, heart failure, stroke, peripheral artery disease and kidney failure.

The risk of suffering from the complications of hypertension is increased if an individual smokes, suffers from diabetes, has high blood cholesterol and is overweight.

(ii) Key Risk Factors

Obesity

Obesity is a condition in which excess body fat has accumulated to the extent that it can cause a variety of adverse health consequences, leading to reduced life expectancy and/or increased health problems. Obesity is associated with many diseases, particularly heart disease, diabetes, and certain types of cancer.

There are many methods of measuring body fat, but the most popular (and the simplest) is the **Body Mass Index (BMI)** which measures the relationship between your weight and height. A BMI of 23 or more puts you at greater risk of obesity-related diseases.

Obesity can be managed by achieving a healthy weight. It is important to lose weight the healthy way through eating right and active living:

- Balancing calorie intake:
  - Opt for smaller serving sizes;
  - Select lower calorie options;
- Select healthier options:
  - Choose and prepare food with less fat;
  - Choose food and beverages with less sugar;
- Get active:
  - Accumulate between 150-250 minutes of moderate intensity aerobic activity per week without increasing the number of calories consumed. Some examples of moderate-intensity aerobic activities are badminton, brisk walking, leisure cycling and tennis;
  - Slowly and gradually increase the intensity and frequency of workouts;
  - Daily activities can also be a form of exercise. For example, taking the stairs instead of the lift or elevator, getting off the bus one or two stops and walk instead, and doing household chores.

DO YOU KNOW?

The National Health Survey 2010 shows that 1.7 million Singaporeans with a Body Mass Index (BMI) of 23 or greater are vulnerable to developing obesity-related diseases such as diabetes and heart diseases. The Survey also found that 1 million Singaporeans with BMI 23 or greater, are either already pre-diabetic, or suffer at least one or more chronic condition such as diabetes.

Source: MOH, National Health Survey 2010

Weight management programmes are available at both the individual and corporate level. Please refer to HPB's website at **www.hpb.gov.sg** for more information.

Cigarette Smoking

Tobacco is the single greatest cause of preventable death globally. Tobacco smoke is a complex mixture of chemicals such as carbon monoxide, tar, formaldehyde, cyanide, and ammonia—many of which are known carcinogens. Carbon monoxide increases the chance of cardiovascular diseases. Tar exposes the user to an increased risk of lung cancer, emphysema and bronchial disorders. Tobacco use leads most commonly to diseases affecting the heart and lungs, with cigarette smoking being a major risk factor for heart attacks, strokes, chronic obstructive pulmonary disease (COPD) and cancer (particularly lung cancer, cancers of the larynx and mouth, and pancreatic cancer). It also causes peripheral vascular disease and hypertension.

Cigarettes contain the addictive drug nicotine. When an addicted user tries to quit, he or she experiences withdrawal symptoms including irritability, attention difficulties, sleep disturbances, increased appetite, and powerful cravings for tobacco.

Common quit methods include cold turkey (quit smoking completely), count down (reduce number of cigarettes progressively) or delay (put off the time of the next puff). For some smokers, pharmacotherapy (use of drugs) can more than double the chances of quitting successfully. Smokers should sign up for a smoking cessation programme at the workplace if available or consult a quit consultant such as a smoking cessation-trained pharmacist, or a doctor to advise on an appropriate method to quit smoking. HPB offers a complimentary phone counselling service called QuitLine at 1800-438 2000.

DO YOU KNOW?

Although Singapore has one of the lowest smoking prevalence in the world, the incidence of adult smoking in Singapore has risen from 12.6 per cent in 2004 to 14.3 per cent in 2010.

Source: MOH, National Health Survey 2010

12.5 Annex E – Basic Health Survey Questionnaire

Organisations may use the following Basic Health Survey Questionnaire to supplement data collected for the Total WSH Gap Analysis. All replies should only be used in a collective manner and treated with the strictest confidentiality. Companies can choose to add on or remove questions from the survey to fit your needs.

Name (optional):_____

Department/ Section/ Branch:_____

Main Job/ Task or Occupation (optional): _____

Tel. no (optional): _____

INTRODUCTION

The information gathered will be used to help your organisation develop and monitor activities to create a healthy workforce. All replies will only be used in a collective manner and treated with the strictest confidentiality. For many questions tick (√) the box that best describes your answer.

Example:

If you have never been for basic health screening you would tick answer 3 in the following question:

When was the last time you had a basic health screening?

☐ 1. Less than 2 years ago

☐ 2. More than 2 years ago

☑ 3. Never had any health screening

A. Personal Particulars

Q1. Ethnic group

☐ 1. Chinese ☐ 2. Malay ☐ 3. Indian

☐ 4. Others (Please specify): _____

Q2. Age (at last birthday)_____years old

Q3. Gender ☐ 1. Male ☐ 2. Female

Q4. Nationality ☐ 1. Singaporean ☐ 2. Permanent Resident

☐ 3. Others (Please specify):_____

Q5. 1. Height:_____cm 2. Weight:_____kg

Q6. Do you have any known health problems?

☐ 1. Yes ☐ 2. No ☐ 3. I don't know

If yes, please 'tick' if you have the following:

☐ 1. Heart disease ☐ 2. High blood pressure

☐ 3. Diabetes Mellitus ☐ 4. High Cholesterol

☐ 5. Others (Please specify): _____

B. General Health and Wellbeing

Please answer the following questions that best apply to you. If you are unsure about how to answer a question, please give the best answer you can.

Q7. How would you rate your health today?

☐ 1. Very good ☐ 2. Good ☐ 3. Moderate

☐ 4. Bad ☐ 5. Very bad ☐ 6. I don't wish to answer this question

☐ 7. I don't know

Q8. **Compared to one year ago**, how would you rate your health in general **now**?

☐ 1. Much better now than one year ago

☐ 2. Somewhat better now than one year ago

☐ 3. About the same as one year ago

☐ 4. Somewhat worse now than one year ago

☐ 5. Much worse now than one year ago

C. Physical Activity

Q9. In the last 7 days, did you exercise? (For example jogging, swimming, cycling, brisk walking, playing soccer, basketball or dancing)

☐ 1. Yes ☐ 2. No

☐ 3. I don't know/ I don't wish to answer this question

If yes, please 'tick' if you have the following:

☐ 1. Jogging for _____ hours _____ minutes

☐ 2. Swimming for _____ hours _____ minutes

☐ 3. Cycling for _____ hours _____ minutes

☐ 4. Brisk walking for _____ hours _____ minutes

☐ 5. Playing soccer for _____ hours _____ minutes

☐ 6. Playing basketball for _____ hours _____ minutes

☐ 7. Others (Please specify): _____ for _____ hours _____ minutes

D. Cigarette Smoking

Q10. Do you smoke?

☐ 1. Yes, Daily

☐ 2. Yes, Occasionally

☐ 3. No, I have never smoked *(Please skip Q11 below)*

☐ 4. No, I have quit *(Please skip Q11 below)*

☐ 5. I don't wish to answer this question *(Please skip Q11 below)*

Q11. Which of the following best describes you?

☐ 1. I plan to quit smoking within the next month

☐ 2. I plan to quit smoking within the next 6 months

☐ 3. I plan to quit smoking within the next 12 months

☐ 4. I plan to quit smoking within the next 5 years

☐ 5. I plan to quit smoking sometime in the future

☐ 6. I do not plan to quit smoking at all but plan to cut down on the number of cigarettes smoked

☐ 7. I do not plan to quit smoking at all and do not plan to cut down on the number of cigarettes smoked

E. Alcohol Intake

Q12. Do you drink alcohol?

☐ 1. Yes, Daily

☐ 2. Yes, Occasionally

☐ 3. No, I never drink alcohol *(Please skip Q13 and Q14 below)*

☐ 4. No, I have quit *(Please skip Q13 and Q14 below)*

☐ 5. I don't wish to answer this question *(Please skip Q13 and Q14 below)*

Q13. On how many days did you drink alcohol during the past week? _____days

Q14. During the past month, did you drink more than 5 drinks in any one drinking session?

☐ 1. Yes; If Yes, how many drinking sessions?_____

☐ 2. No

F. Health Screening

Q15. When was the last time you had a medical check-up with basic health screening (e.g. measure your height and weight, take tests for high blood pressure, diabetes, high blood cholesterol and obesity)?

☐ 1. Less than 2 years ago ☐ 2. More than 2 years ago

☐ 3. Never had any health screening *(Please skip Q20 below)*

G. Stress and Sleep

Q16. How many hours do you usually sleep in a 24 hour period?_____hours

Q17. How often do you have trouble sleeping?

☐ 1. More than once a week ☐ 2. Once a week or less

☐ 3. Never

Q18. On a scale of 1 to 5, where 1 means not stressed at all and 5 means extremely stressed, how would you rate your current level of stress?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Not stressed at all **Extremely stressed**

H. Work

Q19. How many years have you worked in the current job?_____years_____months

Q20. What is the average no. of hours you work a day?

☐ 1. Less than 4 hrs ☐ 2. 4-8 hrs ☐ 3. 9-12 hrs

☐ 4. More than 12 hrs

Q21. Over the past 12 months, have you been absent from work for health reasons?

☐ 1. Yes ☐ 2. No

If yes, how many days were for:

1. Outpatient/ Ordinary sick leave:_____ days
2. Hospitalisation leave: _____ days

Q22. Over the past 12 months, have you ever taken medical leave due to accident or accidents at work?

☐ 1. Yes ☐ 2. No

If yes, how many days of medical leave (due to accident) did you take?_____days

Q23. Over the past 12 months did you go to work when you were sick?

☐ 1. Yes; _____days ☐ 2. No *(Please skip Q24 below)*

☐ 3. I have not fallen sick for the past 12 months *(Please skip Q24 below)*

Q24. If you have answered 'yes' to Q23, please tick whether you had any of the following medical conditions:

☐ 1. Coughs and cold ☐ 2. Skin problems

☐ 3. Body aches and pain ☐ 4. Diarrhoea and/ or vomiting

☐ 5. Eye problems ☐ 6. Injuries

☐ 7. Others

Q25. In the past 12 months, how often are you very tired after work?

☐ 1. Never ☐ 2. 1 day or more a week

☐ 3. Daily

Q26. Please rate the mental stress you experience at work.

☐ 1. None ☐ 2. Low ☐ 3. Moderate

☐ 4. High

Q27. Does your work affect your health?

☐ 1. Yes, mainly positively ☐ 2. Yes, mainly negatively

☐ 3. No ☐ 4. I don't know

Q28. The statements below refer to how you view your work environment. To what extent do you agree or disagree with each statement?

[On a scale of 1 to 5, where 1 means strongly disagree and 5 means strongly agree.]

Please tick the number that best describes your views.

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
28a.	I am proud to work for my company/ organisation.	☐	☐	☐	☐	☐
28b.	My workload is a cause of concern to me.	☐	☐	☐	☐	☐
28c.	I can easily balance the demands of work and home life.	☐	☐	☐	☐	☐
28d.	I feel safe working in my workplace.	☐	☐	☐	☐	☐
28e.	My organisation/ company encourages me to report or provide feedback on unsafe working conditions.	☐	☐	☐	☐	☐
28f.	The management takes corrective actions when unsafe working conditions are reported.	☐	☐	☐	☐	☐
28g.	Overall, I am satisfied with the current working environment in my organisation/ company.	☐	☐	☐	☐	☐

Q29. How much **bodily pain** have you had during the **past 4 weeks**?

☐ 1. None ☐ 2. Very mild ☐ 3. Mild

☐ 4. Moderate ☐ 5. Severe ☐ 6. Very severe

Q30. During the **past 4 weeks**, how much did **pain** interfere with your normal work and activities of daily living?

☐ 1. Not at all ☐ 2. A little bit ☐ 3. Moderately

☐ 4. Quite a bit ☐ 5. Extremely

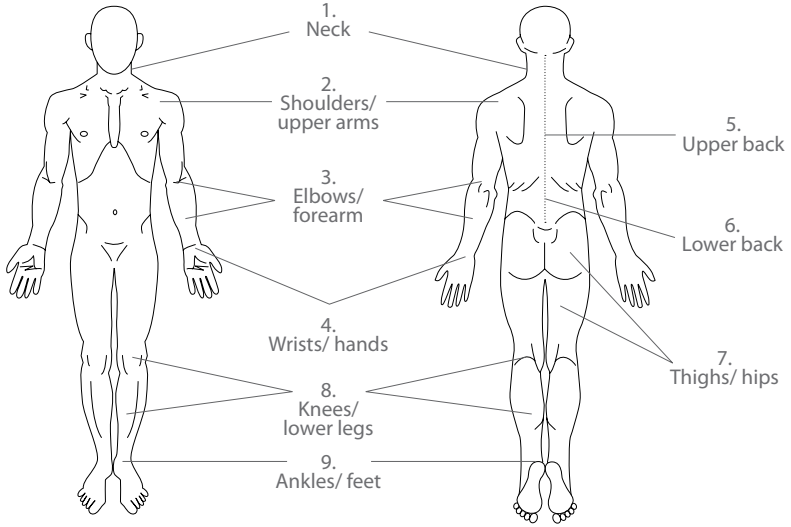
Q31. Have you had any pain in any part of your body in the past 12 months?

☐ 1. Yes ☐ 2. No

1) If yes, please tick the body part(s) affected.

2) And, if you feel that it is due to work?

Body Part	Pain in the past 12 months	Pain due to work
1. Neck	☐	☐
2. Shoulders/ upper arms	☐	☐
3. Elbows/ forearm	☐	☐
4. Wrists/ hands	☐	☐
5. Upper back	☐	☐
6. Lower back	☐	☐
7. Thighs/ hips	☐	☐
8. Knees/ lower legs	☐	☐
9. Ankles/ feet	☐	☐



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