



**PRODUCTIVE AND SAFE WORKPLACES
FOR AN AGEING WORKFORCE**

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■ FOREWORD

Population ageing raises significant management and policy issues. The proportion of older workers in the workforce, and in the Australian Public Service (APS) in particular, is increasing and will continue to increase for the foreseeable future.

The importance of this issue is reflected in several recent reports. The Treasurer's *Intergenerational Report 2002–03*¹, identified key priorities for ensuring fiscal sustainability as the population ages, including by 'encouraging mature-age participation in the labour force'. Key elements of the *National Strategy for an Ageing Australia*² include raising the profile of mature-aged workers, and highlighting their contribution to the Australian economy. The Management Advisory Committee report, *Organisational Renewal*³, emphasises that as the population ages, agencies will face increased competition for new entrants, and an increasing challenge to retain skilled people in a tightening labour market.

In this context, agencies need to maximise the contribution of mature-aged workers and encourage greater retention by implementing an integrated human resource management strategy. One important element of such a strategy will be to sustain higher proportions of employees in good health and free of injury as they age.

Employers have a legislative responsibility to take all reasonably practicable steps to protect the occupational health and safety of their employees.

Some of the characteristics of older workers may make them more vulnerable to some types of occupational injuries, particularly in physically demanding work environments. It is important that employers understand these characteristics so that they can, where necessary, implement strategies to reduce the risks in their workplaces.

Addressing the risks faced by older employees can have wider benefits. The causes of work-related injuries are similar for employees across all age groups, so strategies that reduce workplace hazards and improve work and job design will benefit employees of all ages.

Comcare has produced this booklet to provide Commonwealth managers with guidance material. The material is intended to assist agencies to consider strategies to address workforce ageing in the context of the wide variety of work situations within the Commonwealth jurisdiction. Some of the strategies will be more relevant to some agencies and work environments than to others. It is recommended that agencies consider the strategies outlined and, where necessary, apply an appropriate mix depending on their specific workplace and workforce characteristics and risk management assessments.

¹ Commonwealth of Australia, 2002

² Commonwealth of Australia, 2001

³ Management Advisory Committee, 2003

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Workers aged
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25 per cent in **1992**

■ OUR CHANGING WORKFORCE DEMOGRAPHICS

Population ageing, and related workforce ageing, is attracting growing interest internationally, in Australia and in relation to the APS. While the APS represents less than half of the Commonwealth's workers compensation jurisdiction, a recent study reviewed the broad demographic shifts for that sector. The Management Advisory Committee report, *Organisational Renewal*, found that the APS workforce is ageing faster than the Australian workforce as a whole. This was found to be related to the relative stability of the APS workforce, the large number of 'baby boomers' recruited in the 1960s and 1970s, and a general decline in the proportion of staff aged under 25 over much of the last decade.⁴

Organisational Renewal reports that workers aged 45 years and over now make up 37 per cent of the APS workforce—up from 25 per cent in 1992. It found that the median age for APS employees has increased by four years over the past decade (from 37 to 41 years), although there are significant variations in the age profile between agencies. There has been a declining share of ongoing engagements amongst young people, who tend to come in at lower classifications, and a greater concentration of older employees at the higher classification levels. In June 2002, 69 per cent of senior executive service employees and 46 per cent of executive-level employees were aged 45 or over, compared with 59 per cent and 35 per cent respectively 10 years ago.

Organisational Renewal reports that the APS is now somewhat older than the wider workforce, but has a smaller share of both younger workers and employees

over 55. It is predicted that the APS will continue to age. Projections for 2012 show an increase in the age profile, with the highest proportion expected to be in the 45–49 age group, as shown in Figure 1 (see over).

As the *Organisational Renewal* report emphasises, in the future agencies will face increased competition for new entrants, and an increasing challenge to retain skilled people in a tight labour market. The introduction of more flexible work arrangements and enhanced succession planning within Commonwealth agencies is expected to increase the retention and use of the invaluable corporate knowledge and expertise of experienced employees. At the workplace level, however, Commonwealth agencies will also need to review their risk and performance management strategies to ensure that, where necessary, work organisation and job design are modified to meet the needs of an ageing workforce.

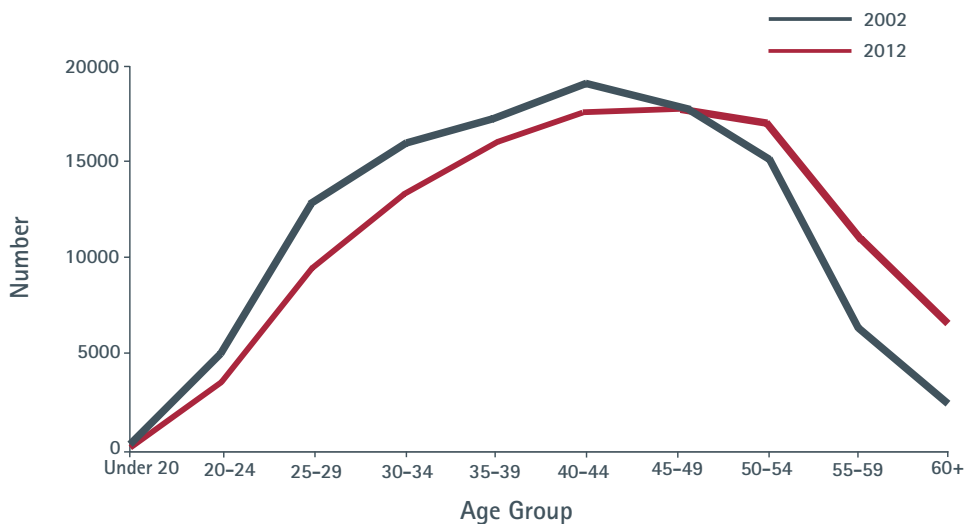
This report describes the current state of knowledge on the work performance and workplace health issues that are of particular relevance for an ageing workforce. It also presents general guidelines on how to sustain higher proportions of employees in good health and free of injury as they age.

■ UNDERSTANDING AGE-RELATED CHANGES

Some of the processes of ageing may make older workers more vulnerable to some types of occupational injuries, but the nature and extent of their vulnerability will depend on their work situation. It is important that

⁴ Management Advisory Committee, 2003

FIGURE1: PROJECTED AGE PROFILE 2012, AND ACTUAL AGE PROFILE 2002



Source: *Organisational Renewal*, based on Australian Public Service Employment Database, Australian Government Actuary projections.

These projections assume that the age distributions of new entrants and those leaving are based on engagement and separation age profiles for the past two years. The projections have been derived assuming that the exit rates observed over the two years to 30 June 2002 continue into the future.

employers understand the implications of ageing for employees' performance capacity so that they can, where necessary, implement strategies to reduce the risks in their workplaces.

AGE AND PERFORMANCE CAPACITY

In the physical domain, it is well established that age-related reductions in muscular strength can reduce people's capacity to perform physically heavy work. However, the declines vary greatly with physical condition—and older workers who strive to stay physically fit may be able to outperform more sedentary younger workers. Cardiovascular capacity and aerobic

power also tends to decline with age. This means that older workers typically have a lower ability to do heavy work, particularly at a fast speed, to work in heat, and more generally to do work which tends to cause shortness of breath. The cardio-respiratory load of even moderate tasks can become particularly critical for older unfit people.⁵

Age is also associated with reduced elasticity in almost all tissues of the body, leading to a decreased range of movement. These changes have implications for tasks where workplace layout requires work at extremes of posture⁶, although individual differences can be significant and can be enhanced through physical activity.⁷

5 K Munk, 2002

6 *ibid.*

7 Improvements in flexibility have been demonstrated through activities such as yoga, flexibility sessions and supervised aerobics; see NSW Health, 1999.

In the area of mental ability, there is considerable individual variability in the timing, order and occurrence of cognitive changes, and some researchers dispute the assumption that age-related changes have negative implications for performance capacity.⁸ The *Seattle Longitudinal Study*, which has continued at seven-year intervals since 1956, has found that a decline in most measurable mental abilities is not reliably observed before age 60. Robertson and Tracy concluded that age-related changes in intellectual functioning are typically minimal for healthy workers with high levels of education and training who are exposed to appropriate stimulation by their surroundings.⁹ Other studies have shown that while older workers were inferior to younger workers in laboratory tests, they were superior on production performance.¹⁰

One of the more robust findings in the ageing literature is that older adults consistently perform more slowly than younger adults on many cognitive and psychomotor tasks.¹¹ This slowing begins in young adulthood and progresses with age, although its importance depends on work requirements. Studies suggest that the decline in information processing capacity tends to become apparent when tasks are more complex, and under some stressful conditions. Task demands usually only cause a problem for older workers, however, when they are accompanied by time constraints and where the employee has no control over such constraints.¹²

It should be noted that the quality (as distinct from the speed) of decision making tends to improve with expertise, experience and age. While the relevance of expertise and experience to task completion will depend on the nature and complexity of the task, it can be sufficient to overcome the impact of the slowing in processing time that may be associated with age.¹³ Also, more experienced workers are likely to have a wider range of effective performance strategies, and these strategies may assist them to counter-balance the effect of a slowing in the speed of information processing.

AGE AND HIGH RISK WORK ENVIRONMENTS

The impact of ageing on performance capacity, and the impact of work on older employees tend to be more critical in physically demanding working environments and/or environments where a number of risk factors interact. Three types of risks have been identified that predict a decline in work capacity, namely:

- *work content/physical loading*—static muscular work, lifting and carrying, sudden peak loads, repetitive movements and awkward postures
- *stressful and dangerous workplaces*—noise, fumes, heat and humidity
- *organisational environment*—role conflicts, poor supervision and planning, fear of failure or mistake, time pressure, lack of freedom of choice, lack of personal development and lack of acknowledgement.

⁸ K Munk, 2002; P Warr, 1994

⁹ A Robertson and S Tracy, 1998; K Munk, 2002

¹⁰ Salvendy, quoted in K Munk, 2002

¹¹ C Bolstad and T Hess, 2000; K Munk, 2002;
Seattle Longitudinal Study

¹² K Munk, 2002

¹³ C Bolstad and T Hess, 2000, p. 283



When **people** are employed in badly
designed work they **'age'**
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and **disability**.

Each of these factors can singularly increase the risk of decline in work capacity, but the greater the number of factors that a worker is exposed to, the higher the risk of steep decline after 50 years of age.¹⁴

Studies suggest that workers who in past years were *most* exposed to physically demanding work environments typically have more musculoskeletal disorders, poorer health, and a much higher rate of permanent disability and associated costs.¹⁵ Injury incidence and costs have been found to be significantly lower for older workers whose previous exposure to physically demanding work and risky environments was lower.¹⁶ One large study showed that when people moved from 'high risk' jobs to ones involving fewer physical risks (in particular, less repetitive work) and where supervisors were more supportive, their work performance and general health improved significantly despite their increasing age.¹⁷

Clearly, working conditions and work design rather than age are the keys to explaining these findings. When people are employed in badly designed work they 'age' at a faster rate, and the longer they spend doing such work, the higher their subsequent rate of injury and disability.¹⁸ As a result, strategies that improve work and job design will benefit workers of all ages. And because people begin work at a young age, intervention at that age may be necessary to minimise problems arising in future years.

AGE, HEALTH AND PERFORMANCE CAPACITY

Within the age range of our current workforce, deteriorating health is not an inevitable consequence of ageing. As noted above, there is considerable inter-individual variability in the occurrence of age-related changes, and physical activity is one important factor in this equation. There is strong evidence that people aged 55 or older who follow an active lifestyle, have the daily functioning equivalent to less active people aged 15 years younger.¹⁹ It has been found that regular light-to-moderate activity may reduce age-associated deterioration in physiological function, while moderate-to-vigorous physical activity may be necessary to bring about changes to the cardiovascular system and minimise disease risk factors.²⁰

However, the relationship between health and ageing is also affected by a range of other factors (such as gender, marital status, education, income, occupation and employment and country of birth)²¹, and it has been suggested that strategies to promote a healthy old age must start before birth and continue throughout the life course—including during the employment years. During these years the need for strategies to reduce damage (such as avoiding smoking), to protect against damage (such as by improving ergonomic intervention, job design and good nutrition), and to prevent loss through lack of use (such as through physical activity) have

¹⁴ J Ilmarinen, 1997a; and K Munk, 2002

¹⁵ J Ilmarinen, K Tuomi and M Klockars, 1997; B de Zwart, J Broersen and M Frings-Dresen, 1997

¹⁶ J Seitsamo and J Ilmarinen, 1997

¹⁷ J Ilmarinen, 1997

¹⁸ K Tuomi, et al., 1997

¹⁹ NSW Health, 1999

²⁰ *ibid.*

²¹ J Byles and L Flicker, 2002, p. 2

been identified.²² Increasingly the need for the work community and occupational health professionals to support such strategies is being recognised.

Health, physical activity and life style promotion strategies have been identified as important to the promotion of work ability among older workers.²³

Health promotion programs can also help to 'immunise' against workplace injury by building a safety culture and improving the social environment by bringing employees together and forming closer relationships.²⁴

IN SUMMARY

- Within the age range of our current workforce chronological age is a very crude indicator of health or performance capacity.
- Individual differences and the effect of non-age related factors (such as physical activity) can be significant.
- Strategies to minimise age-related problems should begin with young people and continue throughout the life course.
- Strategies to be considered include adjustments to the physical and organisational working environment, health and life style promotion and updating professional skills.

²² *ibid.*, p. 9

²³ H Kemper, 1994; J Imarinen and J Rantanen, 1999; J Imarinen, 1999

²⁴ K Mearns et al., 2000; R Simonds and Y Shafai-Sharai, 1977

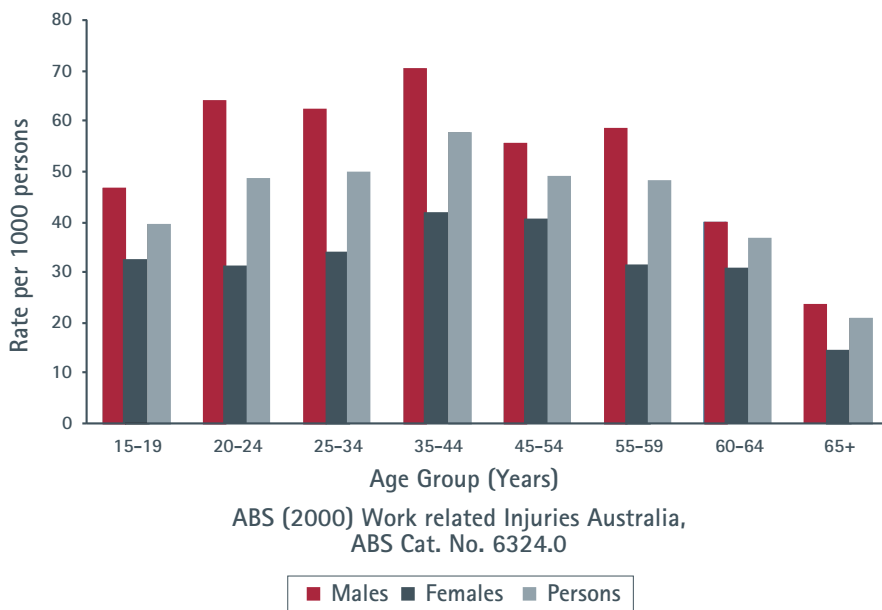
■ AGE AND WORK-RELATED INJURIES

To further explore the risks associated with an ageing workforce, this section considers available statistical information about work-related injuries, workers compensation claims and associated costs.

In September 2000, the Australian Bureau of Statistics (ABS) conducted a work-related injuries survey throughout Australia as a supplement to the Monthly Labour Force Survey. The survey collected information about persons aged 15 years and over who worked at some time in the previous 12 months and who suffered

a work-related injury or illness, whether or not they applied for workers' compensation. As Figure 2 shows, the age group with the highest rate of injury or disease was 35–44 years—with a rate of 58 per 1000 (70 per 1000 for males, and 41 per 1000 for females). The next highest rate was for the age group 25–34 years—with a rate of 50 per 1000 (62 per 1000 for males, and 34 for females). The age group with the lowest rate was 65 and over—with a rate of 21 per 1000 (23 per 1000 for males, and 14 per 1000 for females).

FIGURE 2: WORK RELATED INJURY OR ILLNESS RATE BY AGE



Despite evidence that the age-related changes that affect older workers may make them more vulnerable to some types of occupational injuries, the ABS work-related injuries survey does not suggest that injuries and disease increase with increasing age. Several reasons have been proposed to explain this finding:

- first, it may be that older workers are more likely to be aware of safety in the workplace and, therefore, less likely to have an accident²⁵
- secondly, older workers tend to develop their own coping strategies (such as pacing, anticipation, planning and organisation) as they age²⁶, and these strategies may help them to reduce their injury risk
- thirdly, selection factors may be important. That is, older employees may seek to move out of occupations or industries where their risk of injury or illness would otherwise tend to increase with age and into other forms of employment, phased retirement or early retirement.²⁷ Older workers may also withdraw from the workforce prematurely and involuntarily due to ill health or disability.²⁸

COMCARE'S EXPERIENCE

Comcare claims data for premium-paying agencies, including ACT government agencies, covers a diverse range of occupations. While the work predominantly involves the provision of administrative and community

services, much of which is desk-based, a variety of work types are covered, including operational and field workers such as fisheries scientists, meteorologists, police, security services, customs officers and meat inspectors, as well as teachers and bus drivers.

Analysis of Comcare workers' compensation claims data for the period 1998–99 to 2000–01 shows a different pattern to the ABS injury and illness survey reported above. Comcare's claims data shows that while the under-20 age group has a relatively high incidence of accepted claims, the incidence of accepted claims is fairly uniform across the 25–54 age group, and shows a moderate increase for the 55–59 and 60 and over age groups.²⁹

Analysis of the average total cost per claim for the same period shows a steady increase in cost with increasing age until age 50–54, when costs decline significantly. This increase in costs may be in part explained by the tendency for an individual's pay to increase with age and experience. The decline in costs after age 50–54 is partly related to the cessation of incapacity benefits (i.e. payment for time off work, which is the largest component of compensation costs) at age 65 under the *Safety, Rehabilitation and Compensation Act 1988*.³⁰ Workers compensation claims for employees aged 55 and over cost less on average per claim than do claims for all but the youngest age groups, as Figure 3 shows (see over).

²⁵ L Laflame and E Menckel, 1995

²⁶ K Munk, 2002

²⁷ B de Zwart et al., 1997 found that workers in physically demanding jobs were more likely to change occupations or become too disabled to work than those in other occupations.

²⁸ A Dolan, 2003, p. 267

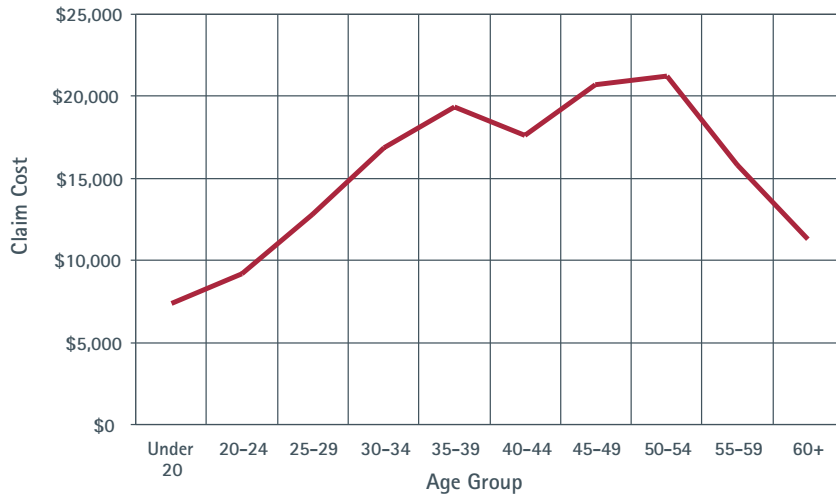
²⁹ Based on the Comcare premium-paying group, including ACT government agencies. The data considered did not include self-insuring licensees, such as Australia Post and Telstra. Incidence takes into account the number of persons working within each age group.

³⁰ Note that the *Safety, Rehabilitation and Compensation and Other Legislation Amendment Act 2001* enabled all employees to receive weekly compensation payments beyond the age of 65 for a maximum period of 104 weeks if they are injured after the age of 63.



Older workers tend to
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FIGURE 3: AVERAGE TOTAL COST PER CLAIM (1998-99 TO 2000-01)



Comcare premium paying agencies, including ACT Government.

Looking at the average of total weeks' incapacity paid (or paid time off work) shows that the average for all age groups for 1998-99 to 2000-01 was 7.6 weeks.

Average weeks of incapacity paid peaks with the 50-54 age group, and falls after age 54, as Table 1 shows.

TABLE 1: ALL ACCEPTED CLAIMS BY AGE AND INCAPACITY, 1998-99 TO 2000-01

AGE GROUP	AVERAGE OF TOTAL WEEKS INCAPACITY PAID
Less than 20	4.0
20-24	4.2
25-29	6.0
30-34	7.2
35-39	7.4
40-44	7.3
45-49	8.6
50-54	9.4
55-59	8.1
60 or older	6.5
All age groups	7.6

Comcare premium paying agencies, including ACT Government.

Analysis of the claim characteristics of employees in the 50 and over age group, compared with the under-50 age group for the period 1998-99 to 2000-01 shows a strikingly similar claims profile. The most significant injury incidence categories for both age groups are sprains, followed by back injuries and occupational overuse syndrome. The incidence of psychological injury claims was found to be relatively low (at less than two claims per thousand employees) for both the 50 and over and the under-50 age groups for the period 1998-99 to 2000-01.

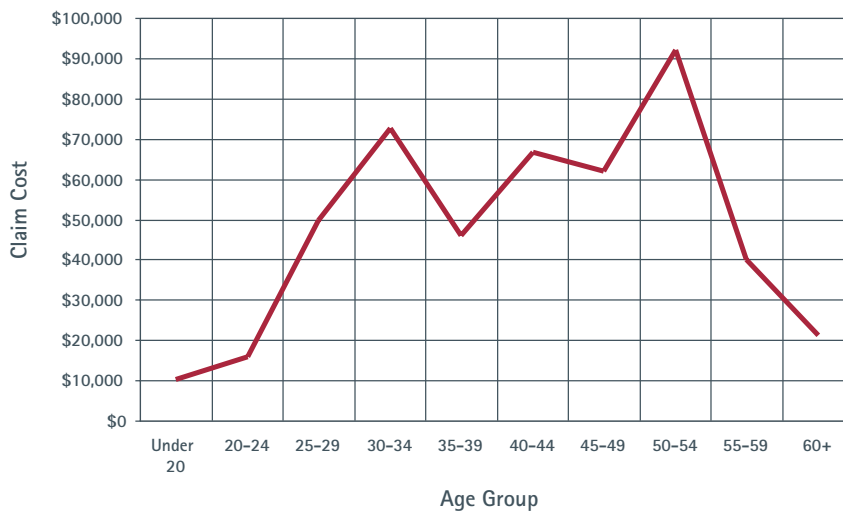
Despite the relatively low incidence of psychological injury claims, data for 1998-99 to 2000-01 shows that these claims have the highest average total cost per claim. Detailed analysis shows that the costs associated with psychological injury claims do not show a direct relationship with age. As Figure 4 shows, the average

total cost per claim reaches a peak for the 50-54 age group, but is also relatively high for the 30-34 age group, and falls dramatically after age 54.

The pattern shown in Figure 4 is in large part related to the average of total weeks incapacity paid (or paid time off work) for accepted psychological injury claims for each age group. As Table 2 shows, incapacity is highest for the 50-54 age group, and relatively high for the 30-34 age group, and is significantly lower for the 55 and over age groups (see over). It may be that older adults who choose to remain in employment after age 55 are more resilient to psychological injury than younger employees.

Certainly, an examination of factors other than age related deterioration would be necessary to explain these trends.

FIGURE 4: AVERAGE TOTAL COST PER CLAIM FOR PSYCHOLOGICAL INJURY CLAIMS (1998-99 TO 2000-01)



Comcare premium paying agencies, including ACT Government.



employees **over 50** do
have...a significantly higher
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to the **under-50** group

TABLE 2: ACCEPTED PSYCHOLOGICAL INJURY CLAIMS BY AGE AND INCAPACITY, 1998–99 TO 2000–01

AGE GROUP	AVERAGE OF TOTAL WEEKS INCAPACITY PAID
Less than 20	12
20–24	11
25–29	23
30–34	29
35–39	20
40–44	28
45–49	28
50–54	44
55–59	27
60 or older	16
All age groups	28

Comcare premium paying agencies, including ACT Government.

Mechanism of injury (or the cause of the claimed condition) shows a very similar profile for employees in the 50 and over and under-50 groups. Body stressing and slips, trips and falls are the most common cause of injury across both groups. However, employees over 50 do have a slightly higher incidence of body stressing and slips, trips and falls, and a significantly higher incidence of falls on the same level when compared to

the under-50 group. Claims related to hearing loss, whilst of relatively low incidence, also have a higher incidence rate for employees over 50. However, most of these hearing loss claims relate to employment types that have reduced significantly in the Commonwealth over the past decade.

In summary, the above analysis suggests that age is not the key to understanding workers' compensation claim patterns for employees of Comcare's premium paying employers. It seems likely that this is because:

- The causes of work related injuries are similar for employees across all age groups.
- Individual differences can be significant, so many older employees may be more functionally able than some younger employees, and are likely to develop their own coping strategies to help them reduce their injury risk.
- Differences in the cost of workers' compensation claims in part reflect the higher pay rates that tend to apply as employees gain experience and progress through the career structure. However, the influence of increasing pay is moderated by the cessation of incapacity benefits at age 65 and the tendency for average weeks' incapacity paid to decline from age 55.

■ MANAGING THE FUTURE

This section outlines strategies to assist agencies to address workforce ageing. It is recognised that not all of the strategies will be relevant to all workplaces. For example, some of the strategies have particular application to physical working environments. These strategies have been included because of the wide variety of work situations within the Australian safety and workers compensation jurisdiction.³¹ Whether it is necessary to apply any of the strategies, and the appropriate mix of strategies, will depend on the specific workplace and workforce characteristics of particular agencies and their risk assessments.

HEALTH PROMOTION

Health and well-being promotion by employers aims to maintain health, reduce the impact of risk factors and slow the changes associated with the ageing process.³²

As noted above, a range of factors determine healthy ageing, but key modifiable risk factors that occur within the age range of employment include:

- physical inactivity
- smoking
- alcohol and drug use
- diet
- stress.

Addressing these factors can be of relevance to the development of a broader strategy to sustain higher proportions of employees in good health and free of injury as they age.

Current recommendations emphasise that vigorous, intense physical activity is no longer considered to be necessary for health benefits. However, whether undertaken by young adults or the over 55s, physical activity needs to be regularly and consistently maintained over time.³³ Health promotions should aim to make physical activity a permanent way of life, rather than occur in temporary spurts. Research suggests that exercise intervention to improve physical fitness and health and reduce musculoskeletal problems is important not only for sedentary office-based workers, but also for more active occupations (such as police and fire fighters, construction workers and cleaners).³⁴

The important health benefits associated with physical activity can be gained through activity of moderate intensity—such as walking, swimming or gentle exercise—for a recommended total of 30 minutes or more on most days. This activity can be accumulated through bouts as short as 10 minutes.³⁵ Efforts to increase physical activity could be targeted towards ageing workers who participate in physical activity only occasionally or are physically passive.³⁶

³¹ In addition to the work covered by the premium paying group of employers, the Commonwealth jurisdiction includes a number of self-insuring licensees employing occupations such as telecommunications and postal workers, and trades associated with munitions manufacture and light and heavy engineering.

³² K Munk, 2002

³³ NSW Health, 1999

³⁴ J Ilmarinen, 1999

³⁵ NSW Health, 1999. This publication also includes recommendations about starting physical exercise safely and the physical activities that people over 55 should avoid to minimise injuries.

³⁶ J Ilmarinen, 1999

Where food services are provided at the workplace, healthy and light alternatives should be available to promote healthy nutritional habits. Support from occupational health care and the work community may also be required for the prevention of obesity.³⁷

Increasingly, researchers and employers are recognising that health promotion is not merely a public policy issue, but that support from the work community and occupational health professionals is needed to change life habits.³⁸ A number of Commonwealth agencies and private sector employers have introduced health and well-being strategies that reflect an appreciation of the importance to an organisation of its employees' general health. These strategies may involve the provision of specific employee entitlements designed to improve health and productivity, such as in relation to one or more of the following:

- access to employee assistance programs
- health promotion programs and activities (such as healthy life seminars, fitness programs, weight loss programs, stretching and flexibility or yoga sessions)
- in-house gym facilities
- discount arrangements for staff joining fitness or health clubs
- annual or periodic health assessments (including periodic screening for cholesterol, glaucoma, diabetes and hypertension)

- eye-sight, hearing, cholesterol or other specific health testing
- reimbursement (within defined limits) of the cost of spectacles prescribed specifically for use with screen based equipment
- assistance to quit smoking
- annual flu and other vaccinations
- access to therapeutic massage or physiotherapy
- rehabilitation support for non-work related injuries.

In some cases, approaches include coordinated programs to promote health and well-being (as distinct from issue-specific approaches).³⁹ The more comprehensive approaches may link health promotion strategies to stress prevention policies and programs, strategies to minimise the extent to which staff are required to work exceptional hours on a regular basis, and strategies to enable a better balance between work and personal commitments (such as through flexible hours, working from home, job sharing, paid parental leave, paid carers' leave, part-time work, staged retirement, family care rooms and family care assistance).⁴⁰

IMPROVE WORK TASK DESIGN

PROMOTE EMPLOYEES' CONTROL OVER THEIR WORK

People of all ages are better able to cope with work demands when they feel that they have sufficient autonomy or control over key aspects of their work.

³⁷ *ibid.*

³⁸ J Ilmarinen, 1999

³⁹ For examples, see Comcare, 2003

⁴⁰ Further guidance in relation to provisions that assist employees to better balance their work and family responsibilities (including caring responsibilities for aged relatives) is available at the Department of Employment and Workplace Relations website www.workplace.gov.au/WorkFamily

Also, their injury risk is lower and they experience greater job satisfaction. Managers can give control to their employees by providing them with some scope to plan their own work, make decisions about how that work should be completed and how problems should be tackled.

People whose work performance pace is largely determined by machine process times or by a moving production line typically experience higher fatigue and stress levels than people whose performance is *self-paced*, so that they can vary their rate from time to time. This is true even when the *average* rate is the same for machine-paced as for self-paced work.⁴¹ Machine-paced work should therefore be avoided to the maximum extent practicable. Where unavoidable, its effects should be reduced by using engineering modifications to de-couple the worker from the machine speed, increasing the worker's capacity to vary their pace and giving them a greater sense of personal control.⁴²

It is not only machine-paced work that reduces the scope for self-pacing and employee control. Time limits imposed on handling calls by call centre staff, and customer service areas where work pace is determined by the number of customers may have similar effects. British research suggests that customer service representatives will experience lower anxiety, lower depression and higher job satisfaction when, amongst other things:

- they have high control over the timing of their work and the methods they use in their work

- job demands, such as the level and difficulty of problems faced, are accompanied by a level of control that enables them to meet demands in the way they consider optimum.⁴³

Australian research has also identified job control issues as a major contributor to stress for customer service representatives.⁴⁴

Having adequate control can enable older workers to adopt performance strategies to minimise problems that may be associated with age-related reductions in response speed. Greater control may also enable them to take rest breaks when they feel they are needed, compensating for reductions (if any) in some physical capacities.⁴⁵

In summary, greater personal control enables workers to adapt work demands to fit their individual needs. By giving people sufficient control over their work, many potential problems may be avoided, including:

- *overload*—and resultant poorer quality performance, physical overuse injuries, accidents and stress-related injuries and illness
- *underload*—which can result in poorer performance quality, as well as boredom-induced psychological injury and related health problems.

Enhanced employee control also increases job satisfaction and supports greater productivity.

⁴¹ I Levi and S Levi, 2000; V Woods and P Buckle, 2002; T Cox et al., 2000; J Ilmarinen, 1999

⁴² Queensland Government, 2000; J Ilmarinen, 1999

⁴³ D Holman and C Fernie, 2000

⁴⁴ ACA Research, 1998 pp. 43–4

⁴⁵ J Marquie, 1998; C Gaudart, 2000

REDUCE PHYSICAL LOADS

Experiencing heavy physical loads at work will not prevent an individual's physical capacity from declining with age. Older workers in more physical jobs need to have their physical work load decreased, and will also benefit from an organised exercise program.⁴⁶

Older workers will be more able to perform effectively and without undue risk of injury if physical loads are reduced to match reduced physical strength. This can be achieved by decreasing the weights and/or sizes of objects lifted, minimising their distance from the person lifting them, and/or providing mechanical lifting equipment where practicable.

A reduction in total exposure to physically demanding work will slow the development of more general, age-related deterioration in physical capacities, sustaining better health for both older and younger workers.⁴⁷

With this objective in mind, a reduction in exposure to repetitive movements for workers of all ages should be a key aim. This is particularly important if repetitive movements are combined with postures that take effort to maintain, fast or forceful movements and/or cold conditions.

ENSURE GOOD VISIBILITY OF TASK-RELATED INFORMATION

Eyesight usually decreases with age⁴⁸, so the working environment may need to be modified to meet the changing visual capacities of older workers. Their reduced ability to focus on objects close to them can be largely corrected by glasses, but there may also

be a need to improve the visibility or legibility of task-related information. This may require modifying visual display characteristics (such as by using larger screen and font sizes, and providing contrast with background) and improving task lighting.⁴⁹

These strategies often have the additional benefit of reducing postural demands and related injury risks, by reducing people's tendency to lean forward to get a closer view of their work.

REDUCE POSTURAL DEMANDS

For workers of all ages, postures that take effort to maintain are one of the most commonly experienced risk factors for musculoskeletal injuries. For older workers the problems associated with such postures can be worsened by age-related reductions in joint mobility because of decreased elasticity of ligaments and muscles.⁵⁰ In addition to this normal deterioration, the incidence of arthritis increases with age, and can further reduce the movement range of affected joints.

A wide range of potential strategies exist for reducing postural problems, most of which entail changes to the design of the task and/or the design or layout of related furniture and equipment. Strategies include careful design or selection, and positioning of workstation furniture and equipment, tools and other materials. The aim should be that their location and dimensions in relation to each other and to the worker allow a relaxed working posture with everything within easy reach.

⁴⁶ J Ilmarinen, 1999

⁴⁷ K Tuomi et al., 1997

⁴⁸ M Millanvoe, 1998

⁴⁹ N Spirduso, 1995

⁵⁰ N Stubbs et al., 1993

For seated work, the layout should allow a reasonably upright posture without any need to twist around or to lean away from this position to reach things, or to get a better view of something. Most tasks should be performed at about waist height, with some variation to fit particular task requirements. For visually demanding tasks or those requiring a high level of precision, it might be best to work a little higher than waist level, and for heavy tasks, a lower height is better. Seated workers need opportunities to vary their posture, particularly by walking around.

Continuous standing in the one position increases the risk of lower back pain and swelling of the legs and feet. If work must be performed in such a position, it might be possible to use a sit-stand chair, which enables workers to vary their posture and is less tiring. The total amount of standing time should be reduced by providing plenty of opportunities for sitting down during breaks, including short, informal breaks. Tasks requiring squatting or kneeling are very risky for all workers and should be avoided if possible.

AVOID EXCESSIVE WORK RATES, PRODUCTION TARGETS OR WORKLOADS

Workers of all ages should not be required to sustain very fast work rates for extended periods, to meet very high production targets routinely or more generally to cope with excessive workloads. Such work demands are likely to be stressful for many employees and should be avoided. Production requirements and workloads should be based on an understanding of the time needed to achieve the required quality, as well as quantity, of work output.

The requirement to avoid excessive workloads or work rates should not be confused with a need to reduce task complexity or to make work easier.⁵¹ For all employees, monotonous or excessively easy work, lacking in any kind of challenge, is de-motivating and is a recognised factor in psychological injury. Older peoples' capacity to cope with complex work demands is not reduced. The quality of older employees' decision making may in fact be better than that of younger people, particularly if their more extensive experience is relevant to the task. Also, more experienced workers are likely to have a wider range of effective performance strategies.

From a physical viewpoint, the reduced cardiovascular capacity that may occur with age means that physically demanding work, or work in heat, would generally need to be performed at a lower average rate than in the case of younger workers. If such work is unavoidable, flexibility in taking rest breaks is essential.⁵²

IMPROVE JOB DESIGN AND WORK ORGANISATION IMPROVE WORK SCHEDULING

Older employees often experience greater difficulty than young people in coping with tiring shift work, particularly night shifts.⁵³ The design of the shift regime can significantly affect employee fatigue. It is particularly important for older workers that best practice shift systems be adopted, to minimise fatigue levels and associated problems. Ideally, mandatory night shifts should be avoided.

⁵¹ J Ilmarinen, 1999

⁵² J Ilmarinen et al., 1991

⁵³ K Reid and D Dawson, 2001

ALLOW FLEXIBILITY IN TAKING REST BREAKS

Work and jobs should be designed so that employees are able to vary the timing of their own rest breaks to match their individual needs. This helps them to compensate when necessary for differences in their physical performance capacities⁵⁴—which may be related to age, physical fitness, general health or other factors.

ALLOW INDIVIDUALS TIME TO ADAPT TO CHANGED WORK REQUIREMENTS

When new tasks, new equipment or other changes to physical work performance requirements are introduced, it is important that adequate time is allowed for older workers, or younger workers who are physically unfit, to learn and adapt to the new requirements. Workers of all ages may need to develop the required strength and fitness over a period of several weeks, gradually increasing time doing the new work activities, depending on their fitness levels.

As people age, strength does not decrease uniformly across all muscles and all types of movement. Lower body strength declines faster than upper body strength, which might be relevant if the new work task requires unaccustomed use of leg muscles, such as in lifting from a squat position, pushing or pulling trolleys, or shovelling. Performance requirements should be reduced during the period of learning and adaptation to new work requirements.

SUPPORT FLEXIBLE EMPLOYMENT CONDITIONS

Employees' overall exposure to workplace risk factors is reduced by a decrease in working hours. Therefore, job sharing, extended leave or part-time work are ways in which more vulnerable workers can reduce their risk of injury and sustain their general health. In physically demanding jobs, reducing work hours should be considered if it is not possible to reduce workload with age.⁵⁵

Such strategies may also be useful for the oldest workers, enabling them to remain as useful members of the workforce for a longer period than otherwise. Part-time work or job sharing can play a key role within a phased retirement program.

IMPROVE THE PHYSICAL WORK ENVIRONMENT

MINIMISE GLARE

Changes within our eyes as we age make older people significantly more susceptible to the effects of glare.⁵⁶ It is therefore important for older workers that there is effective shielding of direct light sources, such as can be provided by suitable diffusers on light fittings. In addition, reflective surfaces such as computer monitors may need to be adjusted to avoid reflected glare.

ENSURE GOOD LIGHTING LEVELS

Because eyesight usually decreases with age, increased levels of general illumination may be needed to enable older people to work without visual strain.⁵⁷ In addition, task-specific lighting should be provided where

⁵⁴ J Ilmarinen et al., 1991

⁵⁵ J Ilmarinen, 1999

⁵⁶ D Kline and C Scialfa, 1997

⁵⁷ P Panek, 1997



Because **eyesight** usually
decreases with **age**,
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general **illumination**
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visual strain.

necessary to ensure good visibility of relevant information. However, the need for good illumination must be balanced against the need to minimise glare.⁵⁸ It is therefore recommended that room lighting should meet, but not substantially exceed, Australian Standard recommendations. Supplementary task lighting should be used where higher levels would be helpful.

MINIMISE NOISE LEVELS

People's hearing often deteriorates with age, so older workers are more likely to have difficulty hearing speech in noisy environments.⁵⁹ Even relatively low levels of noise which would not injure people's hearing can impede conversation, make it more difficult to concentrate on complex tasks, and cause stress and related health problems.⁶⁰ For these reasons, noise levels should be minimised. Also, to minimise age-related deterioration in the hearing of younger workers, noisy work areas should be assessed as a matter of course, and controls implemented.⁶¹

ELIMINATE HAZARDS THAT MIGHT CAUSE SLIPS, TRIPS AND FALLS

Slips, trips and falls have been identified as a leading cause of injury for Commonwealth employees, and particularly older workers. Our sense of balance tends to deteriorate with age, so that older people have greater difficulty in regaining their balance when they slip or trip. Also, they may be more prone to serious injury when they do slip or fall.

Obvious and quite simple solutions include installation of non-slip floor surfaces, provision of adequate lighting for stairs and corridors, and removal of trip hazards such as uneven surfaces. In addition, good housekeeping procedures can be important—for example, by ensuring that spills are immediately cleaned away, and that objects are not stored on floors where people are likely to be walking.

Exercise can also be an important part of a prevention regime. Regular physical activity can favourably impact on three of the most important risk factors for falls—i.e. balance, muscle strength and osteoporosis. A broad-based exercise program, tailored to the ability and preference of the individual, which includes balance training, resistance exercise and weight transfer has been shown to decrease the risk of falls.⁶²

MAKE ALLOWANCES FOR WORKING IN HEAT AND SUN

Older people typically have a reduced ability to work in hot or humid environments, compared with younger people, and this may be particularly so for people who are working outdoors or are not acclimatised to the conditions.⁶³ In hot or humid conditions all workers should have adequate rest breaks, easy access to drinks at all times, and some shade at least during rest breaks. Work should be self-paced with flexible timing of rest breaks.

Recent research points to a direct correlation between sunburns throughout life and an increase in the risk of developing melanoma.⁶⁴ These findings are important

⁵⁸ A Robertson and S Tracy, 1998

⁵⁹ M Millanvoye, 1998; P Panek, 1997; K Tuomi et al., 1997

⁶⁰ A Kok, 1994

⁶¹ National Occupational Health and Safety Commission, 2000

⁶² NSW Health, 1999

⁶³ K Pandolf, 1997

⁶⁴ American Academy of Dermatology, 2003

because it was previously thought that sunburns that occurred in later life were not as detrimental as those in childhood.

The best protection against skin cancer is avoiding prolonged periods of unprotected sun exposure. Therefore workers of all ages who work outdoors should be encouraged to follow sun-safe behaviours (including using sun-protective clothing, wide-brimmed hats, sunglasses and sunscreen). Consideration should also be given to making use of natural and artificial shade and reorganising outdoor work programs by doing alternative tasks when the sun is at its hottest. It is also important to have a regular check on all parts of the body for any abnormalities, since skin cancer, when detected early, can be effectively treated in most cases.

TRAINING FOR AN AGEING WORKFORCE

A range of different strategies should be used to further develop workers' performance capacities. For key tasks, clearly define and communicate to employees the easiest and most efficient methods for task performance. Older workers are likely to be a valuable resource in doing this, so consider ways in which they can be used to mentor and support skills development in younger workers.

Information resources need to be developed and effectively communicated to all employees in a format appropriate to their needs. Older workers also need to understand the importance of investing time and

effort in maintaining the currency of their work skills—with appropriate support from their employer. Sabbaticals and other personal development opportunities may be considered for older as well as younger employees to assist this process.

Training procedures to meet the needs of older workers should be developed in accordance with normal adult learning principles. For all employees, there needs to be ample time for practice, supported by well-designed, task-specific resource material. Inadequate training and practice, as well as defects in manuals and too frequent changes, have been identified as factors limiting the successful introduction of new technology and are relevant to all age groups.

Training should also be conducted in an environment that is perceived by the trainees as non-critical and highly supportive, with ample feedback throughout to bolster their self-confidence and maintain motivation. Trainers need to help people recognise and deal with possible negative effects when existing knowledge or skills are counterproductive in the learning of a new skill.⁶⁵

⁶⁵ A Robertson and S Tracy, 1998; P Panek, 1997; N Spirduso, 1995; P Warr et al., 1999; P Warr, 2002; J Ilmarinen, 1999

■ AN ACTION PLAN FOR AGEING

At the workplace level, Commonwealth agencies need to review their risk and performance management strategies to ensure that work organisation and job design meets the needs of older employees. Consideration should also be given to the benefits of health promotion, work and family and work/life strategies. The development and application of such strategies can improve workforce health and safety, as well as influence other factors such as retention and productivity.

By working through the following checklist, agencies should develop their action plan for ageing. This plan can become the blueprint for the agency's conversion to the kind of age-friendly work environment that best suits its particular characteristics. As the proportion of older workers increases over the coming decade, such a plan will play an essential role in developing and sustaining a more productive and healthier workforce of the future.

Workplace agreements and the process by which they are developed may provide a mechanism for furthering this objective and raising awareness of the issue. For example, both Comcare and the Department of Health and Ageing include specific provisions in their certified agreements to support older workers (see text boxes).

**SUPPORT FOR AN AGEING WORKFORCE:
AN EXAMPLE FROM THE DEPARTMENT OF HEALTH AND AGEING'S 2002-04 CERTIFIED AGREEMENT**

The Department values the extensive skills, expertise and corporate knowledge held by older workers. In an effort to support older workers to remain in the workforce past the minimum retiring age, the

department will develop a strategy to encourage better access to, and use of, the available flexible employment conditions.

SUPPORT FOR AN AGEING WORKFORCE: AN EXAMPLE FROM COMCARE'S CERTIFIED AGREEMENT 2003-05

SUPPORT FOR OLDER WORKERS

Against the background of demographic trends leading to an overall ageing of the Australian Public Service workforce, Comcare is committed to implementing measures to retain the skills, expertise and corporate knowledge of workers approaching retirement age. Comcare will support older workers to remain in the workforce by:

- i) promoting the availability of flexible working arrangements, including part-time employment, job sharing and home-based work, as specific options for older workers
- ii) facilitating re-training and mobility for older workers
- iii) facilitating the transfer of corporate knowledge prior to retirement through mentoring and other arrangements
- iv) raising awareness, through relevant training, information and education programs, of the principles and options for retaining and supporting older workers
- v) eliminating any potential employment-related disadvantages based on age within Comcare.

■ A GUIDE TO IMPLEMENTATION: CHECKLIST OF STRATEGIES AND SOME USEFUL RESOURCES

STRATEGY	ACTIVITIES	FOR MORE INFORMATION
HEALTH PROMOTION AND RELATED INITIATIVES		
Promote health, work and family balance, and work/life initiatives	A range of initiatives may be considered depending on agency needs and employee preferences.	<p>NSW Health, <i>Healthy ageing and physical activity</i>, 1999, http://www.health.nsw.gov.au</p> <p>Active Australia & the Department of Health and Aged Care, <i>National Physical Activity Guidelines</i>, 1999 http://www.health.gov.au</p> <p>Department of Employment and Workplace Relations http://www.workplace.gov.au/WorkFamily</p> <p>Comcare, <i>Improving occupational health and safety and rehabilitation performance through workplace agreements</i>, 2003</p>
IMPROVE WORK TASK DESIGN		
Promote employees' control over their work	Avoid machine-paced work. Design to allow self-pacing at varying rates. Maximise scope for making decisions about own work.	<p>Comcare, <i>Officewise: a guide to health & safety in the office</i>, 2002</p> <p><i>Managing an ageing workforce: a guide to good practice</i>, European Foundation for the Improvement of Living and Working Conditions, 1998</p> <p><i>Combating age barriers in employment: a European portfolio of good practice</i>, European Foundation for the Improvement of Living and Working Conditions, 1997</p>

STRATEGY	ACTIVITIES	FOR MORE INFORMATION
IMPROVE WORK TASK DESIGN CONT...		
Reduce physical loads	Mechanise; provide trolleys and moving equipment. Alter workplace layout (working heights, storage of equipment). Change the nature of loads. Provide appropriate tools.	Occupational Health and Safety (Commonwealth Employment) National Standards) Regulations 1994: Part 5–Manual Handling <i>Approved Code of Practice for Manual Handling, incorporating the National Code of Practice for Manual Handling [NOHSC:2005]</i>
Ensure good visibility of task-related information	Ensure good visibility or legibility of all task related related information: eg good task lighting, adequate font sizes, contrast with background.	<i>Officewise: a guide to health & safety in the office, Comcare, 2002</i> <i>Approved Code of Practice on Interior Lighting, incorporating the Australian Standard—Interior Lighting Part 1, 2, 3 & 4: (AS 1680)(for purchase)</i>
Improve posture	Reorganise workplace layout. Redesign tasks. Provide seating or sit/stand workstations.	<i>Officewise: a guide to health & safety in the office, Comcare, 2002</i> <i>Approved Code of Practice for Manual Handling, incorporating the National Code of Practice for Manual Handling [NOHSC:2005]</i>

STRATEGY**ACTIVITIES****FOR MORE INFORMATION****IMPROVE WORK TASK DESIGN CONT...**

Set reasonable work rate standards, production targets or workloads

Ensure production requirements based on adequate understanding of time needed for good quality performance; clearly define performance quality standards.

Officewise: a guide to health & safety in the office, Comcare, 2002

Managing an ageing workforce: a guide to good practice, European Foundation for the Improvement of Living and Working Conditions, 1998

Combating age barriers in employment: a European portfolio of good practice, European Foundation for the Improvement of Living and Working Conditions, 1997

IMPROVE JOB DESIGN AND WORK ORGANISATION

Avoid monotony, short cycle times

Design jobs with a variety of different tasks; avoid highly repetitive work.

Officewise: a guide to health & safety in the office, Comcare, 2002

Improve work scheduling

Use best practice shift systems to minimise chronic fatigue; avoid mandatory night shifts for older employees

Managing an ageing workforce: a guide to good practice, European Foundation for the Improvement of Living and Working Conditions, 1998

Allow flexibility in taking rest breaks

Allow individuals to vary the timing of rest breaks to match their own needs.

Combating age barriers in employment: a European portfolio of good practice, European Foundation for the Improvement of Living and Working Conditions, 1997

Allow individuals time to adapt to new tasks

Gradually increase time on task; reduce performance requirements during adaption period

Support flexible employment conditions

Allow part-time work, job sharing and phased retirement where practicable.

STRATEGY	ACTIVITIES	FOR MORE INFORMATION
IMPROVE THE PHYSICAL WORK ENVIRONMENT		
Minimise glare	Ensure effective shielding of direct light sources; adjust reflective surfaces, such as computer monitors, to avoid reflected glare.	<i>Officewise: a guide to health & safety in the office</i> , Comcare, 2002
Ensure good lighting levels	Ensure that room lighting meets but does not substantially exceed Australian standard recommendations; use supplementary task lighting where higher levels would be helpful.	<i>Approved Code of Practice on Interior Lighting, incorporating the Australian Standard—Interior Lighting Part 1, 2, 3 & 4: (AS 1680) (for purchase)</i>
Minimise noise levels	Minimise noise levels, remembering that levels well below those which would cause injury can significantly degrade people's capacity to work effectively.	Occupational Health and Safety (Commonwealth Employment)(National Standards) Regulations 1994: Part 3–Occupational Noise <i>Approved Code of Practice for Noise, incorporating the National Code of Practice for Noise Management and Protection of Hearing at Work [NOHSC: 2009]</i>
Eliminate hazards that may cause slips, trips and falls	Install non-slip floor surfaces; establish clean-up procedures for spills; provide good lighting (e.g. for stairs and corridors); remove trip hazards such as uneven surfaces, objects stored on floors; promote physical exercise programs that include balance training, resistance and weight transfer.	<i>Guide to preventing slips trips and falls</i> , Comcare, 2002

STRATEGY**ACTIVITIES****FOR MORE INFORMATION**

IMPROVE THE PHYSICAL WORK ENVIRONMENT CONT...

Make allowances for working in heat and encourage sun-safe behaviour

Ensure access to water and that work is self-paced with flexible break times; allow additional rest time; reduce demands for those unaccustomed to the work and/or conditions.

Promote use of sun-protective clothing, wide-brimmed hats, sunglasses and sunscreen for outdoor work. Give consideration to use of natural and artificial shade and to reorganising outdoor work programs by doing alternative tasks when the sun is hottest. Promote regular checks for skin cancers.

Hazards of working in heat, Comcare fact sheet 27, April 2003

ACTU guidelines for working in seasonal heat, Australian Council of Trade Unions , 1998

Guidance Note for the Protection of Workers from the Ultraviolet Radiation in Sunlight as amended, [NOHSC:3012 (1991)]

Approved Code of Practice on Protection of Workers From the Ultraviolet Radiation in Sunlight, Comcare, OHS Fact Sheet No 33/99–October 1999

STRATEGY

ACTIVITIES

FOR MORE INFORMATION

SUPPORT AND IMPROVE PEOPLE'S PERFORMANCE CAPACITIES

Develop best practice performance standards

For key tasks, clearly define and communicate to employees the easiest and most efficient methods for task performance.

Managing an ageing workforce: a guide to good practice, European Foundation for the Improvement of Living and Working Conditions, 1998

Develop and maintain support systems

Ensure that required resources and information are easily accessible; ensure good communication and feedback.

Combating age barriers in employment: a European portfolio of good practice, European Foundation for the Improvement of Living and Working Conditions, 1997

Improve training programs

Familiarise all employees (particularly supervisors and managers) with basic information about age-related changes in work performance characteristics that may be relevant to their workplace.

Managing an ageing workforce: a guide to good practice, European Foundation for the Improvement of Living and Working Conditions, 1998

Ensure that training procedures cater for varying individual learning styles and needs.

Improve employee morale and expertise

Provide opportunities for social interactions between co-workers. Support mentoring and skills transfer from older to younger workers. Encourage sabbaticals and other personal development opportunities.

■ REFERENCES

ACA Research in conjunction with Deloitte & Touche Consulting Group, *Call Centre Hangups: the Call Centre Agent Report*, July 1998.

American Academy of Dermatology, 'New research in Sun Protection Shines the Light on Sunscreen and Importance of Sun-safe Behaviours beyond Adolescence to Lower Skin Cancer Risk', 2003, www.aad.org/PressReleases.

Bolstad, C and T Hess, 'Situation awareness and ageing', in M R Endsley and D G Garland (editors) *Situation awareness analysis and measurement*, Lawrence Erlbaum, London, 2000.

Bonder, B and M Wagner (editors), *Functional performance in older adults*, 2nd edition, 2001, F A Davis, Philadelphia.

Broersen, J, B de Zwart, F Van Dijk, and T Meijman, 'Health complaints and working conditions experienced in relation to work and age', *Occupational and Environmental Medicine*, vol. 53, 1996, pp. 51–7.

Byles, J E and L Flicker, *Population ageing and trends in health and disease*, Myer Foundation, 2002, prepared for 2020: *A Vision for Aged Care in Australia*.

Comcare, *Improving occupational health and safety and rehabilitation performance through workplace agreements*, Commonwealth of Australia, Canberra, 2003.

Commonwealth of Australia, *Intergenerational Report 2002–03*, Budget Paper No. 5, circulated by the Hon. Peter Costello, MP, Treasurer of the Commonwealth of Australia, Canberra, 14 May 2002.

Commonwealth of Australia, *National strategy for an ageing Australia: an older Australia, challenges and opportunities for all*, issued by the Hon. Kevin Andrews, MP, Minister for Ageing, Canberra, 2001, reprinted with amendments 2002.

Cox, T, A Griffiths and E Rial-Gonzalez, *Research on work-related stress*, European Agency for Safety and Health at Work, 2000.

de Zwart, B, J Broersen and M Frings-Dresen, 'Repeated surveys on changes in musculoskeletal complaints relative to age and work demands', *Occupational and Environmental Medicine*, vol. 54, 1997, pp. 793–9.

Dolan, A, Submission to the Senate Select Committee on Superannuation: Planning for Retirement, by the Assistant Secretary, Department of Family and Community Services, *Senate Hansard*, Commonwealth of Australia, 15 May 2003.

Garg, A, 'Ergonomics and the older worker: an overview', *Experimental Ageing Research*, 1991, vol. 17(3), 1991, pp. 143–55.

Gaudart, C, 'Conditions for maintaining ageing operators at work—a case study conducted at an automobile manufacturing plant', *Applied Ergonomics*, vol. 31, 2000, pp. 453–62.

Holman, D and C Fernie, 'Can I help you? Call centres and job satisfaction', *CentrePiece*, Centre for Economic Performance, London School of Economics, vol. 5(1), 2000, pp. 2–5.

Huhtanen, P, C Nygard, K Tuomi and R Martikainen, 'Changes in stress symptoms and their relationship to changes at work in 1981–1992 among elderly workers in municipal occupations', *Scandinavian Journal of Work, Environment and Health*, vol. 23(1), 1997, pp. 36–48.

Ilmarinen, J, 'Job design for the aged with regard to decline in their maximal aerobic capacity', *International Journal of Industrial Ergonomics*, vol. 10, 1992, pp. 53–77.

Ilmarinen, J, 'Ageing and work: problems and solutions for promoting work ability', *Proceedings of the triennial congress IEA*, 13th Congress, vol. 5, 1997a, pp. 3–16.

Ilmarinen, J, 'Age and working – coping with strengths and weaknesses', *Scandinavian Journal of Work, Environment and Health*, vol. 23(1), 1997, pp. 3–5.

Ilmarinen, J, *Ageing workers and the European Union – status and promotion of work ability, employability and employment*, Finnish Institute of Occupational Health, Helsinki, 1999.

Ilmarinen, J, V Louhevaara and O Korhonen, 'Changes in maximal cardiorespiratory capacity among ageing municipal employees', *Scandinavian Journal of Work, Environment and Health*, vol. 15(1), 1991, pp. 99–109.

Ilmarinen, J and J Rantanen, 'Promotion of work ability during ageing', *American Journal of Industrial Medicine*, September 1999, pp.21–3.

Ilmarinen, J, K Tuomi and M Klockars, 'Changes in the work ability of active employees over an 11-year period', *Scandinavian Journal of Work, Environment and Health*, vol. 23(1), 1997, pp. 49–57.

Kawakami, M, F Inoue, T Ohkubo and T Ueno, 'Evaluating elements of the work area in terms of job redesign for older workers', *International Journal of Industrial Ergonomics*, vol. 25(5), 2000, pp. 525–533.

Kemper, H, 'Physical work and the consequences for the ageing worker', in J Snel and R Cremer (editors), *Work and Ageing: a European Perspective*, Taylor and Francis, London, 1994, pp. 31–46.

Kline, D and C Scialfa, 'Sensory and perceptual functioning: basic research and human factor implications', in A Fisk and W Rogers (editors) *Handbook of human factors and the older adult*, Academic Press, San Diego, 1997, pp. 27–54.

Kok, A, 'Age-related differences in mental work capacity', in S J, C R and H Kemper (editors), *Work and ageing: a European perspective*, Taylor and Francis, London, 1994, pp. 139–162.

Laflamme, L and E Menckel, 'Ageing and occupational accidents: a review of the literature of the past three decades', *Safety Science*, vol. 21, pp. 145–161.

Levi, I and S Levi, *Research on work-related stress*, European Agency for Safety and Health at Work, 2000.

Management Advisory Committee, *Organisational Renewal*, Commonwealth of Australia, Canberra, 2003.

Marquie, J, 'Cognitive change, work constraints and experience: the ageing worker's room for manoeuvre', in *Working with age*, J Marquie, D Cau-Bareille and S Volkoff (editors), Taylor and Francis, London, 1998, pp. 163–186.

Mearns K, R Flin, R Gordon, P O'Connor and S Whitaker, *Factoring the human into safety: translating research into practice*, Health and Safety Executive Report 000 036 to the Offshore Safety Division, HSE, 2000.

Millanvoye, M, 'Ageing of the organism before sixty years of age', in J Marquie, D Cau-Bareille and S Volkoff (editors), *Working with age*, Taylor and Francis, London, 1998, pp. 133–161.

Munk, K, 'The older worker—everyone's future', a paper presented to the Visions Conference 2002, Twin Waters Resort, Sunshine Coast, September 2002.

National Occupational Health and Safety Commission, *Approved Code of Practice for Noise, incorporating the National Code of Practice for Noise Management and Protection of Hearing at Work, NOHSC: 2009*, 2000.

New South Wales Government, NSW Health, *Healthy ageing and physical activity*, 1999, <http://www.health.nsw.gov.au>.

Nygaard, C, T Luopajarvi, and J Illmarinen, 'Musculoskeletal capacity and its changes among ageing municipal employees in different work categories', *Scandinavian Journal of Work, Environment and Health*, vol.17(1), pp. 110–117.

Pandolf, K, 'Ageing and human heat tolerance', *Experimental Ageing Research*, vol. 23, 1997, pp. 69–105.

Panek, P, 'The older worker', in A Fisk and W Rogers (editors), *Handbook of human factors and the older adult*, Academic Press, San Diego, 1997.

Queensland Government, Department of Employment and Training, Department of Industrial Relations, Workplace Safety and Health, *Manual Tasks Advisory Standard*, 2000.

Reid, K and D Dawson, 'Comparing performance on a simulated 12 hour shift rotation in young and older subjects', *Occupational and Environmental Medicine*, vol. 58(1), 2001, pp. 58–68.

Robertson, A and S Tracy, 'Health and productivity of older workers', *Scandinavian Journal of Work, Environment and Health*, vol. 24(2), 1998, pp. 85–97.

Seattle Longitudinal Study, <http://geron.psu.edu/sls/researchers.html>.

Seitsamo, J and J Illmarinen, 'Life-style, ageing and work ability among active Finnish workers in 1981–1992', *Scandinavian Journal of Work, Environment and Health*, vol. 23(1), 1997, pp. 20–26.

Shephard, R, 'Worksite health promotion and the older worker', *International Journal of Industrial Ergonomics*, vol. 25, 2000, pp. 465–475.

Simonds, R and Y Shafai-Sharai Y, 'Factors apparently affecting injury frequency in eleven matched pairs of companies', *Journal of Safety Research*, vol. 9(3), 1977, pp. 120–127.

Spiriduso, N, *Physical dimensions of ageing*, Human Kinetics, Champaign, 1995.

Stubbs, N, J Fernandez and W Glenn, 'Normative data on joint ranges of motion of 25 to 54 year old males', *International Journal of Industrial Ergonomics*, vol. 12, 1993, pp. 265–272.

Tuomi, K, J Ilmarinen, M Klockars, C-H Nygard, J Seitsamo, P Huuhtanen, R Martikainen and L Aalto, 'Finnish research project on ageing workers in 1981–1992', *Scandinavian Journal of Work, Environment and Health*, vol. 23(1), 1997, pp. 7–11.

Tuomi, K, J Ilmarinen, A Jahkola, L Katajarinne, and A Tulkki, *Work ability index*, Finnish Institute of Occupational Health, Helsinki, 1998.

Warr, P, 'Age and job performance', in J Snel, R Cremer, and H Kemper (editors), *Work and ageing: a European perspective*, Taylor and Francis, London, 1994, pp. 309–321.

Warr, P, C Allen and K Birdi, 'Predicting three levels of training outcome', *Journal of Occupational and Organisational Psychology*, vol. 72, 1999, pp. 351–375.

Warr, P, 'Learning and Training', in *Psychology at work*, P Warr (ed.), Penguin, London, 2002.

Watson, D and A Shael, *Older workers—myths and realities*, Victoria University of Technology, Melbourne, 1997.

Woods, V and P Buckle, *Work, inequality and musculoskeletal health*, Health and Safety Executive, Contract Research Report 421/202, 2002.

