

# **Employing older workers and controlling workers' compensation costs**

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## **Introduction**

As the youngest of the baby boomers turn 40 years of age at the end of 2004, we are again reminded the U.S. population is growing older. While the total population continues to grow, the greatest percent of increase among the age groups is in older individuals. This is due to the longer life expectancies, several decades of lower birth rates, and the fact the baby boomer generation has, for the most part, entered the groups considered older age, which is defined as older than 50 for the purposes of this review.

There are several major economic and financial concerns regarding these individuals. Due to their increasing numbers and relatively fewer younger individuals in the workplace, there is concern government and private pension plans will have difficulty continuing to provide benefits at the same levels as currently provided to these individuals. This concern has been reinforced with the decline in the stock market, rising health-care costs, and presumed early retirement due to downsizing or closure of prior employment, disability, or belief they could afford early retirement. Therefore, these individuals may be facing higher relative costs with limited opportunity to increase their benefits. These issues are further complicated by the expected longer life expectancy of these individuals.

As a result of their good health and desire to remain active or as a result of their financial circumstances, many individuals of this population will elect or will need to continue work. The American Association of Retired People (AARP) noted in a 2003 survey that "80% of boomers planning to work after retirement age".<sup>1, 2</sup> The U.S. Bureau of Labor Statistics report the percent of workers who were 55 or older increased from 11.8 percent in 1992 to 14.3 percent in 2002. This group of workers is projected to increase to 19.1 percent by 2012 and represent more than 31 million workers.<sup>3</sup>

Whether due to current workers electing to work beyond traditional retirement age, lack of readily available younger workers, or a relatively large and available labor force of older workers, most employers in the future will need to deal with an older work force. Some of the issues employers may encounter include controlling workers' compensation costs, accommodating workers who may have return-to-work restrictions, and prevention of work-related injuries. The focus of this review is to describe the effects of aging on individuals in relation to their ability to perform work tasks, to provide an overview of national and Ohio's workers' compensation costs for older workers, and to recommend actions employers may use to try to reduce the risk of workplace injuries and accommodate individuals who may have non-work-related disabilities.

## **Effects of aging on work capacity**

An individual's aging process is usually evident by his or her third decade, and is gradual and progressive. Through healthy lifestyles, the process may be slowed, but its progression is inevitable. Many factors affect the aging process or function of various body parts or organs such as genetic factors; exposures and life style including diet, body weight and smoking; activities including childhood, recreational, and work activities and injuries; other diseases such as diabetes, heart disease, etc.; medications used to treat diseases such as steroids and chemotherapeutic agents; and the type and severity of injuries the individual experiences. The

effect or rate of the aging process is specific to the individual but varies widely across the population of individuals within a given age range. Therefore, general statements about the population may not be accurate in all individuals. For example, one individual at age 55 may be significantly impacted (an “old” 55) whereas another individual may be very active and show little impact of age (a “young” 55). Therefore, generalized statements about the aging process may be less accurate in some individuals or underestimate the effect of aging in other individuals. Such observations, however, are generally accurate in describing the population.<sup>4</sup>

Neurological and sensory systems demonstrate some of the earliest effects of the aging process. Effects in these systems are often gradual and may not be known to the individual, family or co-workers. For example, there is frequently reduction in visual acuity particularly near vision such as reading newsprint. Such changes may impact an individual’s ability to perform close work. Reduced vision with use of corrective lenses may improve visual acuity but increase the amount of glare so detecting or reacting to potential harmful events, particularly in dimly lit environments, may be a problem.

With age, there is a gradual loss of hearing that may be imperceptible except the individual may have trouble discriminating specific sounds (speech) in noisy rooms. Other individuals may have more profound hearing loss, which may place them at risk if they can not hear warning devices in the workplace. Generally, detection of events and reaction time is decreased as one ages. Older individuals also may have more difficulty with body position and balance due to neurological deterioration and/or the use of medications to treat other conditions. Therefore, they may be more prone to falls, which are an increased cause of injury in older individuals. Memory and intellectual functioning is also reduced, but these functions are highly variable among individuals and may be difficult to detect. It can be stated, however, that these individuals may learn differently than younger workers, and training may need to be modified or adapted to meet their needs.<sup>5</sup>

The aging process also affects internal organ systems. Those important to work activity are the respiratory and cardiac systems. With age there is a reduction in lung elasticity and increased chest wall stiffness so there is less respiratory reserve. Evidence for these changes are easily demonstrated by a reduction in the predictive values for spirometry results as an individual ages. These predicted values are population based with the most important factors being age, race, gender and height. Since gender and race are fixed, and height changes only marginally as one grows older, age is the most significant factor that contributes to the change in expected values of individuals over time. The cardiovascular system also has changes associated with age. These include decreased arterial compliance, which contributes to high blood pressure or decreased cardiac reserve that may be associated with the increased prevalence of a slower conduction system, coronary artery disease, or reduced myocardial contractility. As a result, older individuals may be less able to increase the cardiac output in response to work demands, require increased time to recover from exertion, or prone to the development of catastrophic outcomes when the demands exceed the individual’s capacity. Hence, fewer individuals are employed in physically demanding occupations in older age.

Advancing age affects the musculoskeletal system in a number of ways. While variable depending on an individual’s activities and conditioning, there is loss of lean muscle mass with the aging process particularly after 40 to 45 years of age. This reduction in muscle mass is also associated with a reduction in flexibility so the individual has reduced range of motion, reach or ability to bend. There is also reduction of bone density, particularly if the individual has a more sedentary lifestyle. This may be severe enough to be diagnosed as osteoporosis. Lastly, the joints typically develop increased stiffness or develop arthritic changes, tendons may show thinning,

and discs become degenerative in nature. All these changes tend to reduce the total capacity of the individual, reduce the ability to perform heavy tasks, and increase the likelihood of injury from cumulative events or a sudden episodic event. Another effect commonly noted is that individuals with injuries or episodic increased use of muscles tend to require a longer time to recover, heal and rehabilitate.

In summary, as the individual ages there is less ability to detect events through sensory organs and reaction time increases, the likelihood of balance problems that may contribute to falls increase, and the cardiopulmonary system's capacity reduces such that increasing work activity may be more difficult, risky and require increased recovery time; and the musculoskeletal system is affected with increased effects of degenerative processes including fractures, degenerative disc disease, tendon tears or effects of osteoarthritis.

### **Observations on work activity and workers' compensation**

Few articles have been published dealing with the impact of a larger population of older workers on workers' compensation costs. Those published have generally looked at past results and projected to future expectations. However, these studies and estimates must be applied to the future with caution due to the effects of changes in the workplace with many jobs being less physically demanding and potentially healthier workers due to lifestyle changes. Other factors to consider include the effects of health care, improved safety, reduction in workplace injury rates and the types of jobs these individuals may choose to perform in the future. On the other hand, many individuals who in the past would have opted for retirement may need to continue working or return to the workplace for income and/or benefits.

The Workers' Compensation Research Institute published an article concluding that "the growing number of older workers in the workforce occurring between 1995 and 2020 will have little effect on workers' compensation costs."<sup>6</sup> Factors contributing to the institute's conclusions included 1) most baby-boomers had already reached middle age by 1995 and would have less impact on costs; 2) despite the increase in older workers, younger workers would still outnumber older workers; and 3) older workers file fewer claims than younger workers. Institute members believed the increased cost of the baby boomer had already been absorbed once they entered the workforce.

Higdon and Collins reported their findings on 85,000 closed indemnity claims from a third party administrator in 10 states for the period between Jan. 1, 1999, and March 31, 2003. They found a positive association between the workers' age at the time of injury and workers' compensation costs. They found the data from the 10 states to be consistent, but the impact or amount of increase of claim cost with older age varied among states. Reasons for these differences include varying industries and job types in the states and different statutes and benefits since workers' compensation is based on individual state laws.<sup>7</sup>

Burton and Spieler reported older workers are less prone to injuries resulting from traumatic events than younger workers, but they are more prone to impairments associated with aging, require additional time to heal, have greater impairments for their injuries, and may have more restricted mobility in the labor market due to their disabilities.<sup>8</sup>

Similar observations were reported by Biddle et. al. who compared the outcomes of workplace injuries of older workers (age 55 or older) to younger workers in California, Wisconsin and Washington. They found older workers are more likely than younger workers to receive

permanent partial disability awards. This finding was attributed to “older workers suffer more lasting consequences of workplace injuries.” These workers also had more lost time associated with their injuries possibly due to more severe injuries, more prolonged recovery, or possibly the individual opting for disability and/or retirement.<sup>9</sup>

That older workers have longer periods of disability than younger workers following similar injuries has been demonstrated by Work Loss Data Institute (WLDI) in the Official Disability Guidelines 2004.<sup>10</sup> Using the databases created by the Centers for Disease Control and Prevention’s (CDC) National Health Interview Survey (NHIS), the U.S. Bureau of Labor Statistics (BLS) annual report of Occupational Injuries and Illnesses, and the National Hospital Discharge Survey (NHDS), WLDI derives Return to Work “Best Practice” Guidelines. These guidelines are diagnosis specific and indicate the expected number of lost-work days for specific treatments and level of work activity. For select diagnoses WLDI has determined age modifiers should be used to represent the age-specific expected number of lost-work days for certain conditions. The modifier is indicated in Table I and is multiplied by the indicated Best Practice Guideline to the age-specific expected number of lost-work days.

Table I  
Disability duration adjustment factors by age  
(From WLDI Official Disability Guidelines 2004)

<u>Condition/ICD-9 code</u>	<u>Age in years</u>			
	<u>35-44</u>	<u>45-54</u>	<u>55-64</u>	<u>65-74</u>
Lumbar disc displacement 722.1	1.07	1.10	1.35	1.64
Degeneration lumbar disc 722.5	1.10	1.00	1.34	0.89
Tendonitis 726	0.93	1.08	1.28	1.36
Carpal tunnel syndrome 354.0	1.08	1.15	1.10	NA

### **Ohio Bureau of Workers’ Compensation’s experience**

During 2003, BWC reviewed its data to compare Ohio workers’ compensation to the results described in the medical literature. Table II lists the top 10 injuries by number of injuries that occurred during the period 1998 through 2002. Reference groups were those younger than 40 years of age and those aged 50 to 70. Injury rates can not be determined since the number of workers for each of the age groups is unknown. This data represents state-fund employers only.

Table II  
Top 10 injury types by volume: 1998-2002

<u>Age &lt; 40</u>		<u>Age 50 to 70</u>	
Injury	No. of claims	Injury	No. of claims
1. Wound, finger	98,895	1. Wound, finger	12,595
2. Lumbar sprain	53,617	2. Lumbar sprain	11,266
3. Wound, hand	28,030	3. L-S sprain	6,212
4. L-S sprain	25,446	4. Knee sprain	5,896
5. Ankle sprain	23,534	5. Shoulder sprain	5,108
6. Shoulder sprain	20,021	6. Knee contusion	4,926
7. Corneal abrasion	19,585	7. Wound, hand	3,639
8. Finger contusion	18,650	8. Contusion face	3,452
9. Sprain, knee	17,794	9. Carpal tunnel syndrome	3,381
10. Contusion, face	17,472	10. Sprain, neck	3,308

Table III shows the amount of medical costs incurred by the top 10 most costly conditions for claims between 1998 and 2002. This information is based on data from state-fund claims only.

Table III  
Top 10 injury types by medical costs: 1998-2002

<u>Age &lt; 40</u>		<u>Age 50-70</u>	
Injury	Cost in millions \$\$	Injury	Cost in millions \$\$
1. Lumbar disc displacement	\$116	1. Rotator cuff sprain	\$29
2. Lumbar sprain	\$98	2. Lumbar sprain	\$24
3. L-S sprain	\$46	3. Lumbar disc displacement	\$23
4. Wound, finger	\$32	4. L-S sprain	\$12
5. Sprain shoulder	\$24	5. Tear medial meniscus	\$11
6. Sprain ACL knee	\$23	6. Carpal tunnel syndrome	\$7
7. Sprain, knee	\$22	7. Sprain, knee	\$7
8. Sprain, neck	\$22	8. Sprain, shoulder	\$6
9. Rotator cuff sprain	\$20	9. Sprain, neck	\$6
10. Cervical disc displacement	\$20	10. Cervical disc displacement	\$5

These results show higher rank for costs for rotator cuff sprain, tear of medial meniscus of the knee and carpal tunnel syndrome in the older population. Carpal tunnel syndrome is known to be more common during and after the fourth decade of life. Other conditions may well represent injuries in which age was a significant contributor.

Table IV shows indemnity costs incurred for the same claims during this time period.

TABLE IV  
Top 10 injury types by indemnity costs: 1998-2002

<u>Age &lt; 40</u>		<u>Age 50-70</u>	
Injury	Cost in millions \$\$	Injury	Cost in millions \$\$
1. Lumbar disc displacement	\$92	1. Rotator cuff sprain	\$25
2. Lumbar sprain	\$62	2. Lumbar disc displacement	\$25
3. L-S sprain	\$30	3. Lumbar sprain	\$18
4. Cervical disc displacement	\$16	4. L-S sprain	\$10
5. Sprain rotator cuff	\$15	5. Tear medial meniscus	\$9
6. Carpal tunnel syndrome	\$15	6. Carpal tunnel syndrome	\$8
7. Sprain, shoulder	\$14	7. Sprain, knee	\$5
8. Sprain, cruciate ligament knee	\$13	8. Cervical disc displacement	\$4
9. Sprain, knee	\$12	9. Sprain, shoulder	\$4
10. Sprain, neck	\$12	10. Shoulder tendonitis	\$4

As these results show, there is a difference between the two groups in terms of rank order with rotator cuff sprain, tear of medial meniscus and shoulder tendonitis having higher rank in the older population.

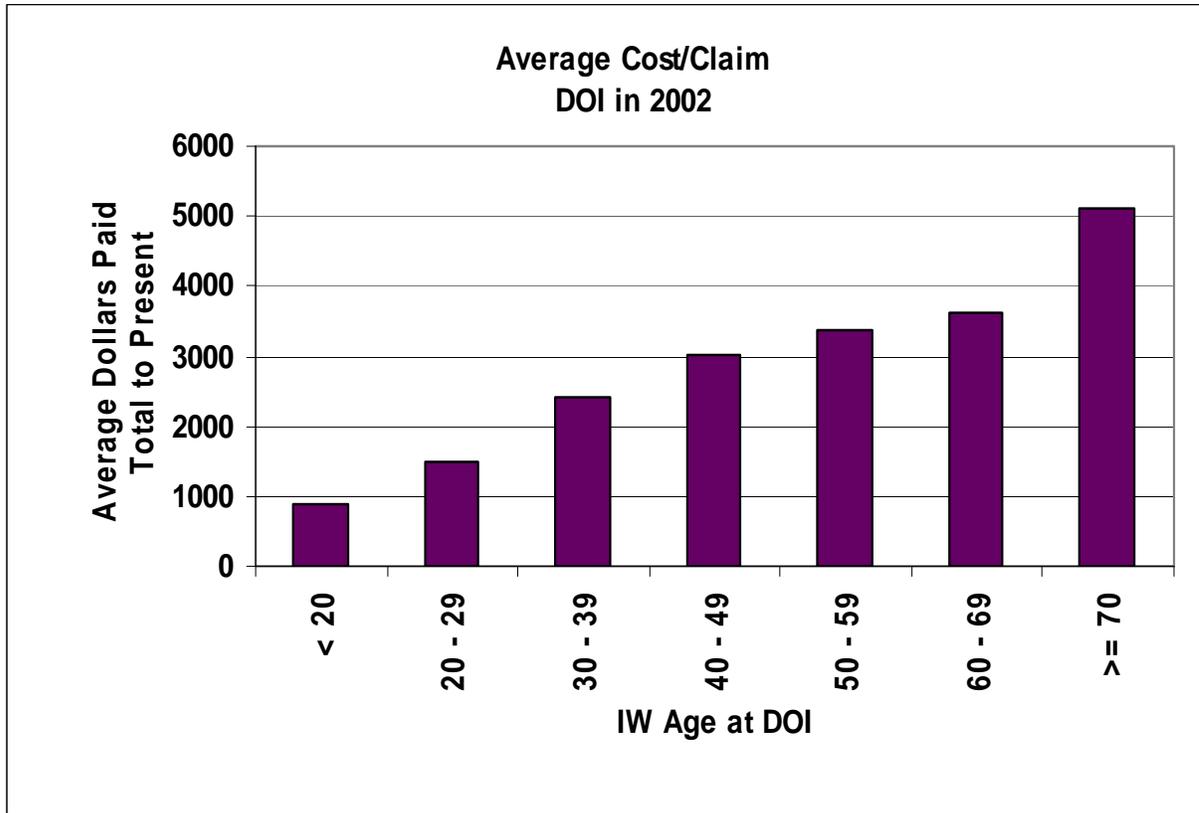
Table V represents a comparison of the number of claims with lost-work time in excess of that based on BWC's expected value. The expected number of lost-work days is estimated based on the individual's job class and the most significant diagnosis (ICD-9 Code Allowed in the Claim). The expected number of lost-work days does not consider the individual's age. This table also does not represent the number of lost-work days (magnitude) but merely whether there were more lost-work days than expected. As shown for each of these conditions, the percentage of claims with more than expected lost-work claims was greater in the older age group.

Table V  
Comparison of percentage of claims with more lost-work days than expected

Injury	% worse age < 40	% worse age > 50	% diff.
Wound, finger	3%	3%	0%
Lumbar sprain	18%	22%	22%
L-S sprain	19%	23%	21%
Wound, hand	3%	4%	33%
Ankle sprain	10%	12%	20%
Sprain, shoulder	14%	18%	22%
Sprain, knee	15%	16%	6.6%

Figure I shows the average cost per claim for claims with 2002 dates of injury assigned to the decade representing the injured worker's age at the time of injury. As shown, as the age increases, the average cost per claim increases. This observation is consistent with other observations.

Figure I  
Average cost/claim for claims with date of injury 2002



In summary, the results BWC observed representing Ohio's injured workers are similar to observations elsewhere. These results seem to indicate younger workers may experience more injuries in the workplace. However, injuries incurred by older workers appear to be somewhat different with more degenerative or age-related type injuries (e.g., carpal tunnel syndrome, rotator cuff and torn meniscus). The severity of these injuries may be greater as demonstrated by the percentage of claims with increased number of lost-work days in comparison to younger workers. Regardless of the claim allowance, older workers have higher average costs per claim than younger injured workers. Therefore, focusing on the types of injuries and facilitating return to work may assist employers and BWC in controlling workers' compensation – and perhaps disability – costs.

### **Possible prevention measures**

Given the wide variety of work environments, employer's ability to modify job tasks or assignments, and perhaps limitations on assigning individuals to jobs due to laws or union agreements, it is impossible to provide specific recommendations applicable to all employers and work environments. However, based on the available information, it can

be stated that, by focusing on general safety and ergonomic measures, employers can reduce the likelihood of work-related injuries in older workers.

Primary workplace safety objectives should be to try to eliminate slips or falls that are more common in the older worker population. Since older workers have more brittle bone with less elasticity, falls and perhaps sudden twists are more likely to result in fractures. Due to deterioration in sensory modalities, balance and reaction time, ensuring adequate lighting and controlling noise as much as possible should be beneficial. In addition, providing even flooring and eliminating objects that can contribute to falls and prompt cleaning of spills or slippery surfaces that may cause slips or falls should be considered. Concern should be raised about allowing older workers to perform tasks from ladders and at excessive heights.

Ergonomic principles should be implemented to try to reduce the risk of over exertion type injuries such as tendon tears, awkward postures that may cause increased stress to certain body parts, and injuries that may aggravate pre-existing or naturally deteriorating conditions such as arthritis of the knee, degenerative changes in the rotator cuff, or degenerative disc disease. Principles would include the following:

- Reduce the physical requirements of work, particularly for lifting, pulling or twisting since older workers have less muscle mass, flexibility and, in many cases, degenerative conditions or cardiopulmonary limitations. This may be accomplished by using lifting devices or tools, reconfiguring work stations, changing job assignments or working with smaller amounts of material.
- Perform work tasks between mid-thigh and mid-chest level. Working in this area allows the individual to avoid bending, which increases the stress on the lumbar spine and raising the arms. Since the individual does not need to expend as much energy supporting the upper torso and arms when in the bent position, work in this area is less fatiguing.
- Perform job tasks, and particularly lifts, close to the body. Performing work tasks far from the body extends the reach and creates significant forces because the object's weight and the individual's arms are multiplied by the distance from the center of the body. Keeping work close to the body reduces the amount of force required and reduces the likelihood of over exertion.
- Avoid above-the-shoulder work. This position places increased work and potential wear and tear on the rotator cuff because these muscles and tendons raise or elevate the arms. Above-the-shoulder work also increases the amount of energy required since the individual must raise his or her arms in addition to performing the assigned job task.
- Due to the likelihood of degenerated meniscus and arthritis of the knees, try to eliminate squatting, stooping and kneeling as much as possible.
- Avoid awkward positioning as this may place unusual or excessive stress on body parts and may increase the likelihood of developing carpal tunnel syndrome when the wrists are involved. Avoiding awkward postures while in the standing position may reduce the likelihood of falls.

As stated, all recommendations may not be applicable to all employers or work environments. These measures should reduce the likelihood of work-related injuries and should assist employers with return-to-work programs and accommodate employees with work-related and non-work-related medical conditions.

Employers who would like assistance are encouraged to contact BWC's Division of Safety & Hygiene at **1-800-OHIOBWC** (options 2, 2), online at **ohiobwc.com**, or via e-mail at [safety@bwc.state.oh.us](mailto:safety@bwc.state.oh.us).

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<sup>1</sup> "AARP and Harvard University's Generations Policy Initiative Symposium Explores European and American Boomers' Situation" at [www.aarp.org/research/press/presscurrentnews/Articles/a2004-05-20-boomers.html](http://www.aarp.org/research/press/presscurrentnews/Articles/a2004-05-20-boomers.html).

<sup>2</sup> Rix SE: "Aging and Work-A View from the United States" AARP Public Policy Institute, Washington D.C., 2004 at [www.aarp.org/ppi](http://www.aarp.org/ppi).

<sup>3</sup> "Table 4. Civilian Labor Force by Age, Sex, Race, and Hispanic Origin, 1992, 2002 and projection 2012" at <http://www.bls.gov/news.release/ecopro.t06.htm>.

<sup>4</sup> Resnick NM: "Geriatric Medicine" in Harrison's Principles of Internal Medicine 15<sup>th</sup> Edition, McGraw-Hill Publishing, New York, 2002, pp 36-39.

<sup>5</sup> Wegman DH: "Older Workers" Occupational Medicine: State of the Art Reviews 14: 537-557, 1999.

<sup>6</sup> "Workers' Compensation and the Changing Age of the Workforce" at <http://www.wcrinet.org/cgi-bin/test.cgi?url=home/httpd/wcrinet.org/studies/public/abstract>.

<sup>7</sup> Higdon KM and Collins JL: "A Study on Aging and the Cost of Workers Compensation" The Journal of Workers Compensation 61-68.

<sup>8</sup> Burton JF and Spieler E: "Workers' Compensation and Older Workers" National Academy of Social Insurance Number 3, April 2001.

<sup>9</sup> Biddle J, Boden LI, and Reville RT: "Older Workers Face More Serious Consequences From Workplace Injuries" National Academy of Social Insurance Number 5, December 2003.

<sup>10</sup> Denniston PL: Official Disability Guidelines 2004, Work Loss Data Institute, 2003.