

So You're Retired? Not So Fast – Attacking Injuries of an Aging Workforce

**Bill Spiers, BS, CSP
Lockton Companies
Charlotte, North Carolina**

Introduction: “Chicken Little—The Sky Is Falling”

Think back if you can to the time as a kindergartener sitting in a circle eating fruit and listening to your teacher read the folk tale about Henny Penny-“Chicken Little”. As you will remember an acorn falls on Chicken Little’s head and the chick sets out to warn all of the other animals including the King that the sky is falling and to take cover. In thinking about the issue of an aging workforce and among the many, negative effects on employee injuries we are reminded how this subject could be viewed as just another Chicken Little - Sky is Falling scenario. It is no secret that our baby boomer generation now makes up a large portion of our workforce and it is also general knowledge that the older a person becomes the more medical problems develop. So why does it appear that these commonly known facts of a growing aging workforce and increased propensity to injury have not driven more business leaders and safety professionals to developing aggressive attack plans to counteract the negative results? This is not another Chicken Little – Sky is Falling topic but a safety tsunami happening now and in the years to come. As we will explore, all of the research, studies, and more importantly initial aging workforce financial metrics strong empirical evidence that injuries to an aging workforce are a real, significant, and will continue to be a driving factor in increased employee injury costs over the next 10-20 years. As safety and risk professionals, our senior leaders will be depending upon us to deliver solid strategies to counteract the trend.

As we explore this topic once again, perhaps in greater detail, we should first consider the dynamics of US work patterns, work population, and workforce aging both current and in the future. “The percentage of workers expecting to retire before age 65 has decreased from 50 percent in 1991 to 24 percent.”¹ Study after study continues to show workers are living and working longer than ever before. The increase of the baby boomers moving through the workforce, reaching retirement eligibility is already happening and will continue to escalate in the years to come. A second element of this issue to consider is the impact of increased age on employee performance, productivity, and recovery/healing from injuries. As we will discover, this impact can be both physical and psychological in nature. We generally know that as a person ages the propensity to have certain body systems (circulatory, muscular, skeletal, digestive) fail or

¹ Employee Benefit Research Institute, “The 2012 Retirement Confidence Survey; Job Insecurity, Debt Weigh on Retirements Confidence, Savings;” *EBRI Issue Brief #369*, Fact Sheet #2, pp. 1,

develop disease increases. In essence our physical body wears down much like a machine. Dr. Sherwin Nuland of Yale University expresses like this: “Like all other generalized words, “aging” – whether in animals or man – is difficult to define with specificity. Never the less, all gerontologists – the scientists who study it – would agree that it is most usefully described as the process by which a healthy individual of any species gradually deteriorates into one that is frail, one whose bodily capacities and reserves are constantly diminishing at an ever-increasing rate, and one who is therefore becoming more and more vulnerable to disease and ultimate death.”² An additional point to consider in understanding aging workforce safety and strategies are the economics associated with this aging workforce injury trend. As safety and risk professionals know first-hand, our leadership teams most often are focused on one primary goal, making money. It is painfully clear that as professionals dealing with this issue we must have a clear understanding and ability to articulate the significant costs associated with older worker injuries whether it is the cost of absenteeism or cost of workers compensation losses. Finally, taking all of the information about aging workers, injuries, and costs we will attempt to take a glimpse of successful efforts already put into play by other organizations and a general framework for safety system enhancements that can lead to getting ahead of this ever increasing challenge. As we will find, our senior workers are critically important to the successes of our businesses and organizations. Safety professionals today must find effective and sustainable solutions to protect them from injury and our employers from the costs.

The Aging Population and Longer Work Patterns

Labor Force Patterns

According to the US Bureau of Labor & Statistics by 2030, one in four (25%) of all workers will be over the age of 55. As a reference point, this number in 1950 was one in six (17%) and in 2010 was one in five (20%). Study after study point to the general trend that the workforce of today is staying longer in active work brought on by many factors one of which includes general improvement in life expectancies brought on by advances in health care, disease treatment, and medical cures. The United States Census Bureau reports a life expectancy in 2008 of 78 years (Females-80.8, Males-75.9) while projections for 2015 and 2020 show life spans of 78.9 years and 79.5 years respectively. There is strong evidence to show a connection to longer lives and higher numbers than ever before of older folks being capable and willing to stay in the workforce. If you think about it, we really should expect these improvements in life spans given advances in medical treatment with respects to heart disease, cancer treatment, and elderly care. “The trend toward working longer in life was apparent before the recession of 2008. The U.S. Census Bureau predicts that the number of workers over age fifty-five will escalate from 19 million in 2002 to 32 million by 2015, a prediction that requires all sorts of assumptions about the availability of jobs, the age that qualifies for retirement benefits, and the largesse of pensions. If correct, the percentage of the workforce over age fifty-five will escalate from 14 percent to 20 percent in this time frame. Furthermore, many of these workers with career jobs will transition to self-employment.”³

² Sherwin B. Nuland, *The Art of Aging: A Doctor’s Prescription for Well-Being* (New York; Random House, 2007), pp. 27.

³ Nortin M. Hadler, M.D., *Rethinking Aging; Growing Old & Living Well in an Overtreated Society* (Chapel Hill, The University of North Carolina Press, 2011) pp. 95-96.

Motives for Working Longer

The longer work patterns are a result of improved medical treatment and healthcare however there are a number of other factors to consider that have driven workers to stay longer in their jobs. These include such items as:

1. Short term financial need (pay the bills)
2. Insufficient retirement investments (nest egg)
3. Marketable & valued skills.
4. Still enjoy working
5. Decline in the pool of qualified or available workers.

Each of these clearly is influencing the decisions of older people to stay in the workforce in either full or part time roles. There is another very powerful influence on the aged to stay in working situations and it lies in the inherent need to contribute or be productive. All humans have the inherent need to be productive in some way. From an early age we enjoyed helping our moms and dads do little projects. Remember our prideful grins after we finished decorating the Christmas tree or making cookies. Clearly, as we age that desire to remain productive, have satisfying achievements or successes never departs our thinking and motives of life. It can be argued that it is this powerful motivator that attracts the older members of our society to continue to work past the traditional age of retirement and why our workplaces will be full of senior citizens in the years to come albeit in more part time roles. “A 78-year-old Terman woman, Agnes Eccles, explained to me that in the past three years she had been serially hospitalized for three blocked brachial (arm) arteries. In addition, she had undergone surgery for a broken hip and finally a total hip replacement, “These physical assaults left me disabled but not defeated. My accomplishments since then have been to stay alive and alert and to be thankful for all the blessings that have been mine.”⁴ The key word in that story is accomplishments our aging population will work longer because they can, in some cases need to, and most importantly it brings an inner peace of accomplishment.

Additional Indicators of Aging Workforce

As was discussed, both working patterns and increased life expectancy data show that our workers have already begun to stay longer in the workplace thereby increasing injury risks to employers. From all of the research this trend not only is notable today but also is projected to continue to climb in the future, painting a picture of significant opportunity for safety professionals. Many other metrics compiled by both private and public researchers point to the same trend. For example in a 2012 presentation by Cornell University ILR School, Employment and Disability Institute the following eyebrow raising statistics were offered:

- 76 Million Baby boomers
- 30.8 Million in the Workforce
- 85% Plan to continue to work after retirement
- 70% prefer to work full time
- 7 in 10 plan on working at 65
- Nearly half plan on working into their 70s and 80s

⁴ George E. Vaillant, M.D., *Aging Well* (New York, Little, Brown and Company, 2002) pp. 160-161

- According to NOD (2001) those 55-64 have 21.9% chance developing a disability
- 42% of 65+ reported functional limitations (2005)⁵

The Impact of Aging on Human Performance

The human body is an amazing thing. For example the body will replace 50,000 dead cells in about 3-5seconds, our skin has the ability to secrete, through the sweat glands, antibacterial substances to kill off invading microorganisms before they enter our pores. The body's ability to heal itself from injury, maintain heart/circulatory functions, respirations without stopping for 70 80, 90 years is incredible. Our eye sight, hearing, mental capacities (thinking), and reproductive abilities are simply stunning. Although amazing, the body clearly is not immune from a deteriorating state as it ages. The deterioration of our human bodies is one of the natural laws and cannot be stopped only slowed.

Physical Effects of Aging

As the body ages most all aspects of the functioning systems are impacted by weakening or decline in efficient operation. Take for example the major organs of the body and how aging effects their efficient functioning, such as the heart, pancreas, lungs, and kidneys. Consider the effects of aging on the lungs and ability to exchange oxygen and carbon dioxide. Medical research has shown that aging lungs develop decreasing elastic recoil of lung tissue and stiffing of the chest wall. These among other conditions make breathing less efficient as years go by and can weaken an older person to other disease, decreased healing as a result of breathing weakness and less efficient oxygen exchange. Similarly, an aging heart will pump less blood with each beat. "Researchers found that each year as people age, the time it takes for their heart muscles to squeeze and relax grows longer, by 2 percent to 5 percent."⁶ "We already knew that the heart is constantly trying to adapt to risk factors, but now we know that this task gets more difficult as the heart ages and loses a little bit of its pumping capacity every year, says Cheng, now a cardiology fellow in Boston."⁷ In addition to the heart and lung age related weaknesses, the pancreas also is affected with age. Age often impacts the pancreas' ability to supply much needed insulin, weakening the body and impairing overall health and healing. Some additional negative physical characteristics associated with aging include weakening of the immune system where older folks have difficulty fighting off viruses and infections. Finally, aging of the human body affects both bone regeneration and muscle injury recovery due to nature's decreasing muscle fiber and flexibility. This negative affect of aging on muscle flexibility, fiber and recovery explains why older workers experience such high number of strain/sprains in moderate and high manual labor jobs, and why workers' compensation costs associated with these claims are significantly higher

⁵ Bruyère, S., Young J., Maybaum, M., The Aging Workforce: Challenges and Opportunities for Providers and Employers" www.ilr.cornell.edu/edi/download/NCRE_2012_Aging_workforce_presentation.pdf, pp. 5.

⁶ Joao Lima, M.D., Susan Chang, M.D., Veronica Fernandes, M.D., David Bluemke, M.D., PhD; Age-Related Differences in Left Ventricular Structure and Function, the Multiethnic Study of Atherosclerosisohns, Johns Hopkins News and Publications, 2007, http://www.hopkinsmedicine.org/news/media/releases/aging_heart_changes_shape_shrinks_and_loses_pumping_function_too

⁷ Joao Lima, M.D., "Age-Related Differences in Left Ventricular Structure"

as age increases. We will explore the cost component of aging worker injuries in the next section of this discussion.

Mental Effects of Aging

As with the physical changes brought about by aging, mental effects are also a factor for an aging worker. Brain weight and volume decrease with age caused by what many researchers believe is the loss of neurons (cells relaying impulses) in the brain. This decrease brings about loss of memory, focus, and concentration on a task or job. More specifically, older people have difficulty concentrating on multiple tasks where their attention is divided or task switching is required frequently and quickly. Research has shown consistently that a slowing of information processing often happens in the aged population. Older workers would be fully capable of retaining information (procedures/best practices) but their ability to process information quickly would be impacted particularly when they are attempting to manage multiple tasks at one time. Another mental effect of aging that can often be manifested with age is the increase of depression or a depressed state.

Not all mental effects of aging are negative. Many researchers believe with age brings about a mental liberation, if you will, where older persons look for freedom to explore new things, tackle new challenges, master something new. Further to this point there has been specific research on this topic where during the 50+ age period of ones life the neuron development and connectivity reaches high numbers driving interest in exploring new challenges, learning and experimenting. “At a deeper level, this developmental energy combines with the specific patterns of brain growth we learned about in Chapter 1, which strengthen the parts of the brain responsible for information processing, learning, and memory formation. In particular, dendrites, the branchlike extensions of neurons that facilitate communication between brain cells, reach their greatest number and density in the hippocampi of human beings from the early fifties to the late seventies, a period that completely encompasses the liberation phase. Moreover, new neurons continue to grow in the hippocampi. This combination of brainpower and psychological development provides the energy for exploring new challenges, learning new skills, and experimenting with new activities, roles, and relationships.”⁸ In terms of the aging worker safety discussion, it is fairly obvious that mental and physiological changes to the brain can negatively affect productive activities but as importantly can be positives as we look to safely deploy our older workers into jobs/tasks that will insure lower risks and fewer injuries.

Reality of Aging Worker Injuries

We have only hit the highlights of the effects of aging on the human body and subsequent injuries. The reality is these factors can highly influence the predisposition to injury and the speed of healing/return to active duty. Consider a 55-year-old manufacturing machine operator who strains his back pulling product off of a production line after a long 9-hour shift. Given our previous discussion on the affects of aging on muscle recovery and repair, we can expect this employee to experience longer healing time due to the natural loss of muscle fibers, and deteriorating heart/circulatory efficiencies. Add to this scenario the fact that our machine operator could be overweight, suffer from high blood pressure, is diabetic, and has a weak immune system. Our aging machine operator’s back muscle injury healing is slowed, his time away from

⁸ Gene D. Cohen, M.D., Ph.D., *The Mature Mind – The Positive Power of the Aging Brain* (Basic Books, NY, 2005) pp. 69-70.

productive work lengthy, and medical treatment expenses much more expensive than that associated with a similar injury to a younger worker. This brief scenario shows the realities of why aging worker injuries are such an important challenge to risk and safety professionals today.

Aging Workforce Effects on Businesses and Organizations

What really seems to bring to light the aging workforce issue today are the workers compensation claim cost data that has begun to flow in highlighting injury trends for the Baby Boomer generation, (50+ age group). Analysis after analysis of workers compensation injury trends from within the insurance industry show definite and reoccurring negative trends. As many know, in the insurance world the cost of injuries is measured through what is known as Loss Runs. Loss Runs from virtually every source today show that the age groups 40+ traditionally have fewer injuries but the highest costs, particularly measured as average cost per claim. These staggering statistics should be fuel enough to make this aging worker safety issue a priority of each risk manager and safety director.

Lockton’s team of loss data analysts continually measure our client’s losses, loss trends, and present detailed summaries to the safety and claims professionals housed within client, insurance carrier, and Lockton team. This team has performed hundreds of analyses and have been routinely finding where the claims costs associated with aging worker injuries are elevated across many industries. The following provides just a sampling of varying size Lockton clients and the workers’ compensation injury costs by age groupings. These exhibits are actual and “live” loss data reflecting injury activity from 2009 to 2012.

Company A

This is a midsize healthcare firm with approximately 300 WC claims per year and \$1.3MM in undeveloped losses. Over a four-year period of time, losses sliced by age showed the following:

Age Group	Average Cost Per Claim	% of Total Claims
Under 20	\$941	2%
20-29	\$1,922	21%
30-39	\$3,329	18%
40-49	\$3,720	21%
50-59	\$3,973	27%
60 & Over	\$7,024	11%

Figure 1. Midsize healthcare firm with approximately 300 WC claims per year and \$1.3MM in undeveloped losses

Company B

This is a small to midsize food distributor with approximately 150 WC claims per year and \$1.2MM in undeveloped losses. Over a four-year period of time, losses sliced by age showed the following:

Age Group	Average Cost Per Claim	% of Total Claims
Under 20	\$1,114	4%
20-29	\$2,706	27%

30-39	\$8,751	27%
40-49	\$16,176	28%
50-59	\$4,903	11%
60 & Older	\$18,547	2%

Figure 2. Small to midsize food distributor with approximately 150 WC claims per year and \$1.2MM in undeveloped losses.

Company C

Mid to large food company with approximately 750 annual WC claims and undeveloped losses of \$6.5MM.

Age Group	Average Cost Per Claim	% of Total Claims
Under 20	\$1,777	12%
20-29	\$5,081	31%
30-39	\$9,834	26%
40-49	\$11,022	19%
50-59	\$17,017	9%
60 & Over	\$7,858	3%

Figure 3. Mid to large food company with approximately 750 annual WC claims and undeveloped losses of \$6.5MM

As you have seen in each of these three random samples, the size of claims varies and from a pure statistical standpoint these three examples do not necessarily provide a firm statistical conclusion. However, from simply an empirical standpoint each shows higher costs per claim as the worker age bands increase and in several cases the percentage of overall claims within that age group are lower. A take away challenge for those studying this issue would be to assess how your injuries and claims statistically layout by age band which could then drive a thoughtful conversation and strategy to reduce cost.

Another statistical study provided by Gary G. Peterson President & CEO of The Edge LLC, shows similar empirical data. Mr. Peterson provides total workers' compensation loss data from one of his clients, a unionized company, in the heavy industry transportation space. The data described below represents over 8,500 workers' compensation claims and \$120 million incurred losses. Here is the breakdown of these claims by employee age:

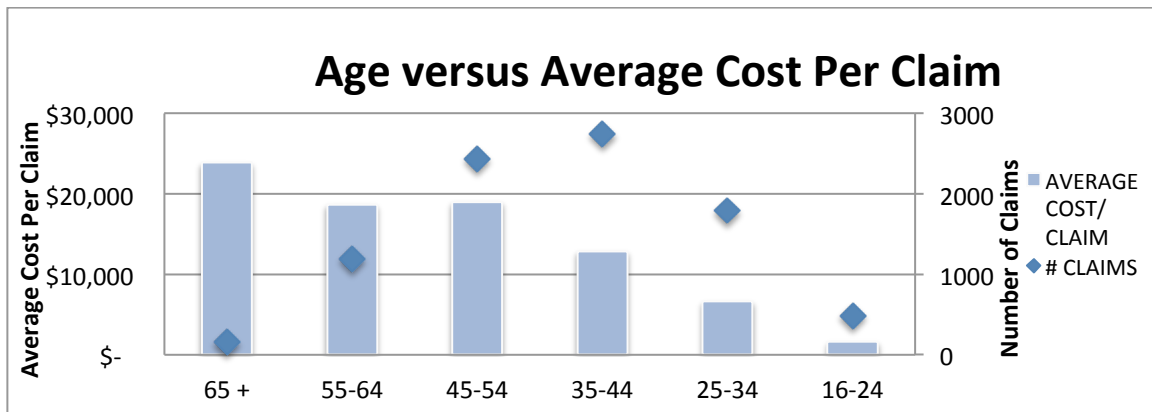


Figure 4: Age Versus Average Cost per Claim from a Unionized Company⁹

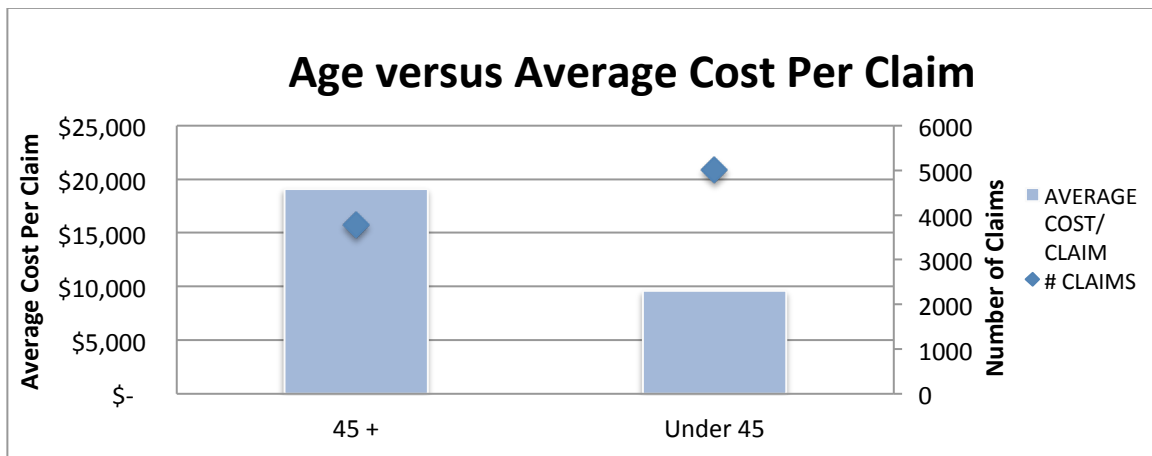


Figure 5. Age Versus Average Cost Claim over Employees over and under Age 45¹⁰

Finally, the NCCI (National Council on Compensation Insurance) recently published a report on the statistical trends of workers compensation losses. This interesting study provides some validation of both the Lockton and Peterson statistics but is an evolving analysis for all. “Older workers generally tend to have higher costs per worker, but “older” seems to start with age 35, with all groups of workers aged 35-64 having similar costs per worker. Workers 20 to 24 have markedly lower severities and costs per worker and workers 25-34 fall in the middle. Differences in injury rates by age group have largely disappeared.”¹¹

⁹ Gary G. Peterson, President/CEO, The Edge, LLC, “Client Data”, Parker Colorado, 2012.

¹⁰ Peterson, Gary G. “Client Data”

¹¹ Tanya Restrepo, Harry Shuford, National Council on Compensation Insurance, NCCI Research Brief, December 2011.

Aging Workforce Safety Improvement Strategies

Information about aging, the baby boomer generation, effects on worker injuries is voluminous and readily available. However, what really is of most importance to safety and risk professionals in attacking the problem is meaningful, cost effective, and sustainable solutions that don't sacrifice productivity, infringe on workers' employment rights, aren't overly costly to implement, and drive material reductions to injuries. This seems to be quite a challenge given all of the other workplace demands on safety professionals and operational managers. Since this is a relatively new issue to those of us who are constantly chasing the elusive injury free environment, activities and best practices are limited.

The BMW Experiment

One effort recently implemented directly attacking the aging workforce problem was initiated by the BMW car company in 2007. Although not primarily focused specifically on employee injuries, BMW wanted to address productivity concerns from an aging workforce pool in the area around their Dingolfing, Lower Bavaria, Germany plant. The firm was concerned that the limited pool of workers in this area was steadily growing older and with retirements a shortage of qualified workers would continue to develop. The BMW management team knew they needed to address the issue head on for survival of this plant. Through a thoughtful analysis, collaboration with the older workers the BMW plant made some very significant changes that proved highly successful. The plant engaged in the following:

1. Established a collaborative team of management and aging workers to explore improvements to the workstations, processes, and best practices.
2. Pooled their oldest workers into a single production station so changes/improvements could be isolated for the target group.
3. Conducted ergonomics evaluations of key jobs/tasks where the aging workforce would be deployed looking for opportunities to automate, install adjustable tables, and mechanical assist devices.
4. Engaged in thoughtful job rotations to manage repetition, required force, and fatigue.
5. Initiated strength and stretching exercises.

The BMW older workforce project produced impressive results within a one-year period. With an investment of about \$35,000 US Dollars, the targeted area of the plant improved overall production by 7% with an equal improvement in older worker absenteeism. General absenteeism dropped from a 7% figure in 2008 to 2%. The BMW experiment certainly validated how powerful collaboration, isolating the problem, ergonomics, and physical conditioning play in dealing with the aging workforce injury issue. This example provides solid foundational concepts that should prove useful as safety professionals work to create similar strategies addressing the aging workforce issue as relating to injury prevention.

Solutions and Strategies

Improvement strategies to address the aging workforce safety issue must include several component elements to drive sustained success. These elements are not new to other successful safety and health approaches but are framed for the older workforce issue. Strategy elements should include:

1. *Find Them:* A critical initial step in reducing aging worker injuries and risks would be to find where your 45+ workers are assigned and the specific jobs that they are doing. Isolating the target older workers can aid in ergonomic interventions and task assignments.
2. *Collaboratively Assess Target Jobs/Tasks:* Utilizing ergonomic principles, aging worker jobs/tasks should be fully analyzed to measure forces/strength required, repetition, body positioning, and combination of all three. This analysis would lead to identifying control methods applicable to reducing injury potential to the target aging employees. Solutions should be developed through direct collaboration with the older workers affected and could include job rotation, use of mechanical aids, automation, team oriented work, job shadowing or process changes.
3. *Look for Reassignments:* Where possible solutions to aging workforce safety could be locating and reassigning older workers to jobs/tasks more aligned with their physical capabilities (strength, stamina, agility, mental attention span, etc.) Combining ergonomic assessments of specific job tasks with formalized physical capabilities testing for the target aging worker can be a very powerful technique to prevent injury.
4. *Offer Creative Employment Options:* Allow upper age groups to have access to alternative work schedules such as semi part time with health benefits, weekend only work, seasonal work, phased in retirement option, part time employment with access to pension, finite work plans each year (3-, 6-, or 9-month work plans).
5. *Include a Wellness Component:* In conjunction with your health benefits offer a wellness program that drives better lifestyle choices and healthier living options. The wellness program could include a stretching/strength program for those aging employees required to perform manual physical activities.

Conclusion—Was Chicken Little Right?

Looking at aging workforce safety as a “sky is falling” issue is probably an extreme exaggeration. There are many challenges facing the safety professional and the companies for whom they work including such areas as; creating management accountability, effective safety leadership, OSHA compliance, creative and effective training, sprain/strains, slip & fall injury reductions, changing employee behavior, gaining senior management active commitment, to name a few. However, the aging workforce issue is here to stay and should become a component of all safety improvement strategies for those firms serious about impacting the number and cost of employee injuries. We know the workforce trends show older workers are staying in the workplace past the traditional retirement age thereby increasing the number of 45+ workers across the employment landscape. In addition, it is clear that as the human body ages there are both physical and mental changes that alter the capacity of those older workers to safely perform tasks that they once could do effortlessly at a younger age. Although there are changes that take place with age, the older worker can remain a highly productive member of the workforce with careful planning and enhancements to their job tasks. Further, aging worker injury/loss information both from rigorous statistical analysis (NCCI) and from empirical studies show that aging worker injuries are costly and increase directly in relation to the increase in age. Finally, by applying sound safety management principles and key elements of already successful aging worker efforts the safety professional can get ahead of this problem within their organization or company. Our aging workers are a vital component of organizations in the years ahead. Their deep experience and knowledge are critical assets that must be protected and preserved. Safety professionals can assume a significant role in this endeavor. “The development impetus for adults at or approaching retirement age is not toward retirement, disengagement, or dimming vigor. On the contrary, the

universal Inner Push at this age is the emerging sense of personal liberation, and while retirement can catalyze this phase, it is not required to stir up feelings of freedom and exploration.”¹²

Bibliography

- Amen, Daniel G., M.D., *Magnificent Mind at Any Age*, New York, Harmony Books, 2008
- Bruyere, Susanne, Young, Judy, Maybaum, Michelle, *The Aging Workforce: Challenges and Opportunities for Providers and Employers*, www.ilr.cornell.edu/edi/download/NCRE, 2012
Aging workforce presentation.pdf.
- Cohen, Gene D. M.D., Ph.D., *The Mature Mind – The Positive Power of the Aging Brain*, New York, Basic Books, 2005.
- Hadler, Nortin M., M.D. *Rethinking Aging; Growing Old & Living Well in and Overtreated Society*. Chapel Hill; University of North Carolina Press, 2011.
- Joao, Lima, M.D., Chang, Susan, M.D., Fernandes, Veronica, M.D., Bluemke, David, M.D., PhD; “Age Related Differences in Left Ventricular Structure and Function, the Multiethnic Study of Atherosclerosisohns,” *Johns Hopkins News and Publications*, 2007,
www.hopkinsmedicine.org/news/media/releases/aging, 2011.
- Loch, Christoph H., Sting, Fabian J., Bauer, Nikolaus, Mauermann, Helmut, “How BMW Is Defusing the Demographic Time Bomb,” *Harvard Business Review*, *The Globe*, March 2010.
- Nuland, Sherwin B. *The Art of Aging- A Doctor’s Prescription for Well-Being*. New York; Random House, 2007.
- Peterson, Gary G., The Edge LLC., “Client Data,” Parker Colorado, 2012
- Restrepo, Tanya, Shuford, Harry, National Council on Compensation Insurance, *NCCI Research Brief*, December 2011.
- Vaillant, George E., *Aging Well*. New York; Little Brown and Company, 2002

¹² Gene D. Choen, M.D., Ph.D. *The Mature Mind – The Power of the Aging Brain*, Basic Books, NY, pp. 69.