

Running Head: Impacts of OPEB Losses

The Charlotte Fire Department and Other Post-Employment Benefits (OPEB's)

An Analysis of the Loss of Retiree Healthcare Benefits

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CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotations marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions or writings of others.

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Abstract

This descriptive research project dealt with identifying the possible impacts that the loss of retiree healthcare insurance will have on the firefighters of the Charlotte Fire Department. The Charlotte Fire Department (CFD) did not know how the loss of retiree healthcare insurance would impact its firefighting force. The purpose of this research was to identify the impact that the loss of retiree healthcare for future firefighters would have on firefighter's age at retirement as well as the impact on firefighter fatalities and injuries. This was done by answering three research questions. What impact will the loss of retiree healthcare have on the age that firefighters retire at? What role does age play in firefighter fatalities and injuries? What major injuries or illnesses typically occur in Charlotte Fire Department retirees between the ages of 50 and 65? This research was accomplished by conducting multiple survey's, personal interviews and an exhaustive literature review.

The findings of this research showed that with the absence of retiree healthcare insurance the average age that CFD firefighters retire at will extend, possibly by 10 years or more. This will place a much larger number of firefighters within the over 50 age bracket than the department is accustomed to. This age bracket has a disproportionately high percentage of LODD's and injuries. Additionally, injuries sustained by firefighters in this age bracket result in a higher percentage of lost or restricted time injuries. Recommendations include the reestablishment of these benefits for firefighters, the changeover from a defined benefit plan to a defined contribution plan, the establishment of healthcare savings plans or the establishment of temporary plans from the date of retirement until Medicare eligibility. By addressing this issue the city can ensure that the department remains a strong and effective department into the future.

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Introduction

The city of Charlotte, N.C. currently employs 6,700 (Charlotte Observer, 2008) with 1,035 being uniformed Firefighters. At this point in time these employees receive the basic benefits that are provided by employers throughout the country. These benefits include Medical Insurance, Dental Insurance, Eye care insurance, Flexible Spending programs, health and wellness programs and retirement plans to name a few. One of the most valuable benefits has been provided since 1971. This benefit is medical insurance for retirees. With the Total Personal Health Care (PHC) spending showing an average annual growth of 7.7% from 1987-2004 (Centers for Medicare and Medicaid Services, 2004), this benefit has become one of the most sought after benefits that retirees can possess.

In the spring of 2009 the Human Resources Department of the City of Charlotte made the recommendation that this benefit be dropped from the employee benefit package for employees hired after July 1, 2009 (Ellis, personal correspondence, January 15, 2010) (Appendix A). This recommendation was approved by the Charlotte City Council on June 8th, 2009. While this change in policy will not begin affecting the Charlotte Fire Department's (CFD's) firefighting force until 2034, it bears the possibility that the city's firefighting force will be drastically affected by this change in policy. The problem is that the Charlotte Fire Department (CFD) does not know how the loss of retiree health care for future firefighters will impact the firefighting force. The purpose of this research is to identify the impact that the loss of retiree health care for future firefighters will have on firefighter's age at retirement as well as the impact on firefighter injuries due to age related susceptibility to injuries or illness.

In order to explore this issue the following research questions will be addressed during the course of this applied research project:

1. What impact will the loss of retiree health care have on the age that firefighters retire at?
2. What role does age play in firefighter fatalities and injuries?
3. What major injuries or illnesses typically occur in Charlotte Fire Department retirees between the ages of 50 and 65?

For the purpose of this research project the researcher will use a descriptive research approach to determine how the loss of retiree health care for future CFD firefighters will impact the CFD's firefighting force.

Background and Significance

At the current time healthcare is one of the most talked about subjects in America. With everyday bringing new revelations about increased costs and possible solutions healthcare will continue to be the subject of discussions and policy changes. So much uncertainty and so much possible change will impact every department's ability to recruit and hire qualified individuals. In addition, executive level planning and retention could be affected through the loss of qualified personnel impacting succession planning as well as personal development of individual leaders. This reality is no different for the City of Charlotte and its employees than it is for anyone else. A 2001 survey conducted by the Employee Benefits Research Institute showed that 60% of employees rank health insurance as the most important benefit with retirement savings plans second at 23% (Christensen, 2002).

The city of Charlotte currently employs over 6,700 personnel (Charlotte Observer, 2008) serving a population base of 716,874 citizens (<http://www.charlottechamber.com/eco-dev/charlotte-overview/>) within the 242.87 square mile city limits (J. Schumaker, public presentation, November 7, 2006). The Charlotte Fire Department provides services out of 41 fire stations staffed by 1,035 operations personnel, responding to over 91,000 calls for service in 2009. The benefit package provided by the city is one of the most important methods of compensation provided for these employees. Within this benefit package the city provides health care through preferred provider organizations (PPO's). Each employee has a choice of provider with Aetna and Blue Cross Blue Shield of North Carolina being the current choices. While these are private agencies administering the plans, the City of Charlotte is self insured. Each year the city conducts a bidding process where companies bid on the right to administer the individual health insurance plans to employees. However, the city provides the funding for these insurance claims up to \$250,000 per employee per year. The city maintains a separate policy which picks up after this amount for catastrophic issues (Ellis, personal correspondence, January 15, 2010).

As with most municipality benefit packages this package has evolved over the years, especially in regards to health insurance (Appendix A). These changes affect no demographic more than those who have retired from service. Beginning in August of 1971 the City extended group medical coverage to retirees under age 65 at their own expense. Then in January of 1977 the city implemented a Medicare supplement plan whereby employees retiring at age 65 or currently retired employees upon attainment of age 65 could continue coverage beyond age 65 at their own expense. The basic premise of these plans remained unchanged until July of 1982 when the city began subsidizing the cost of retiree medical insurance by paying the cost of retiree coverage and a portion of the dependent coverage. A period of limited change once again

occurred until September of 1993 when the city adopted managed care plans for both active employees and retirees. Health insurance for retirees underwent another major change in January of 2002 when it was established that those hired after this date were responsible for the full cost of dependent's coverage upon their retirement. Since this time the only changes that have occurred have been increases in the percentage of the total premium that employee's and retiree's are responsible for. That is until July of 2009 when retiree health insurance was dropped from the benefits package for those hired on or after July 1, 2009.

Many of these changes occurred due to the constant quest to save tax dollars. Beginning in the late 1980's the city of Charlotte started to explore ways to "provide the best services at the lowest cost" (City of Charlotte, 2010). This was done through the City Council's Restructuring Government Committee. For years this committee has met and made recommendations in regards to how the city provided services, both internally and externally. "Although Restructuring Government is no longer a major focus area for the City, the Committee continues to meet to address issues that affect the following goals:

- Meeting customer expectations for an increasingly diverse population
- Making sound investments in technology in facilitate improvements in service delivery and employee productivity
- Managing the City's financial resources effectively
- Delivering services that provide value and are competitive in cost and quality
- Recruiting and retaining a skilled and diverse workforce."

(City of Charlotte, 2010). In 1997 this committee approved recommendations to thoroughly evaluate the impact of Government Accounting Standards Board (GASB) accounting standards and how they will impact the pay as you go method of funding retiree health care.

“The GASB is a private, nonpartisan, nonprofit organization that works to create and improve the rules U.S. state and local governments follow when accounting for their finances and reporting them to the public. The GASB was founded in 1984 under the auspices of the Financial Accounting Foundation (the Foundation), which appoints the GASB’s board, raises its funds, and oversees its activities. The Foundation also oversees the GASB’s counterpart for the private companies and not-for-profit organizations, the Financial Accounting Standards Board” (Government Accounting Standards Board, 2005). From time to time the GASB issues statements which in turn become the standards for governmental accounting practices. Beginning in 1994 this board established standards on how government pension benefits are accounted for. However these standards did not include accounting measures for non-pension benefits or Other Postemployment Benefits (OPEB) which include health insurance, dental, vision, prescription and other healthcare benefits.

To address this issue the GASB issued Statement 43 *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*, and Statement 45 *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*. These two statements became the blueprint in which government agencies began accounting for the cost of providing such benefits. Together they require government agencies to recognize the long-term liability for post-employment OPEB’s.

The issuance of these statements caused state and local governments throughout the nation to look at how they show the financial liabilities accrued with the OPEB's provided to their retiree's. The city of Charlotte began doing this in the late 90's and this led to many changes with the culmination being the dropping of retiree health insurance from the OPEB's for those employee's hired after July 1st, 2009.

As with any changes made to the benefits of thousands of employee's this change bears the possibility of having a ripple effect in many areas. One of these areas is the retiree's from the Charlotte Fire Department. Members of the Charlotte Fire Department are currently enrolled in the Charlotte Firefighters retirement system. As noted on the Charlotte Firefighters Retirement System's website (Charlotte Firefighters Retirement System, ¶ 1);

Charlotte Firefighters' Retirement System (CFRS) was organized pursuant to Chapter 926 of the 1947 Session Laws, as amended, of the State of North Carolina. The CFRS was established on the fifth day of April, 1947, for the purpose of providing retirement and permanent and total disability benefits to the uniformed members of the Fire Department of the City of Charlotte. The stated purpose of the CFRS was amended on the 29th day of June, 1987, to provide survivor benefits to named beneficiaries as an added objective. Additional amendments have been made from time to time to enhance the benefits of current and future retirees within the funding of the retirement system.

Benefits for participants are defined by this act and are regulated by a board of directors consisting of 11 members. Benefit payment amounts are equal to 2.6% of an employee's salary for each year of service with the highest two years of the final five years of service being used to

calculate the rate of retirement compensation. Members must meet specific criteria in order to qualify for retirement. These criteria include;

1. Any age with 30 years or more of membership or
2. 50 years of age with 25 years or more of membership, or
3. 60 years of age with 5 years of more of membership.

As of 1987 this retirement system had assets in excess of 379,000,000 for the purpose of funding the retirements of 458 retirees and 950 active employees (Charlotte Firefighters Retirement System, ¶ 4).

With 25 years of service necessary for retirement the impact that the dropping of retiree healthcare will have on the firefighting force within the Charlotte Fire Department remains to be seen. These impacts will not be felt for at least the 25 to 30 years that it will take for the most recent hires to reach retirement age and years of service. While the background research above shows that there are many variables that have brought the city to this decision, predictions can be made as to what impacts these variables would have had if a different course of action were taken. This being said it must be noted that at the present time only assumptions can be made in regards to the significance of these impacts; however, the severity of these impacts and the significance they play in the level of service provided by the CFD bears research.

These impacts include but are not limited to the fact that with the majority of CFD members retiring at or around 50 years of age, the average age of members may increase. This is due to the fact that without healthcare benefits members may put off retirement until they are closer to or reach the age where they are eligible for Medicare. This increase in retirement age will subject older members to possible increases in injuries, both orthopedic and medical in nature. It is readily accepted that firefighting is a young man's game. Due to the rigors of firefighting and

other emergency response work firefighter's injury rates remain at a high level year to year. According to the International Association of Firefighters "sprains and strains routinely account for approximately 50% of all line-of-duty injuries and back injuries account for approximately 50% of all line-of-duty injury retirements each year. These injuries may result in significant lost time and medical expense." (International Association of Firefighters).

While at present employee retention, department succession planning and the department's ability to respond to and mitigate emergencies should not be impacted, as time goes on this may change. During the time leading up to the retirement of employee's not eligible for retiree healthcare the CFD's ability to retain qualified persons and in turn maintain an effective succession plan may be impacted. Once the age of qualification for retirement benefits is reached members may not be financially able to retire due to the cost of personal healthcare. This will have a maturing of the workforce effect which may cause an increase in on the job injuries and illnesses impacting the department's ability to respond to and mitigate emergencies, thus impacting the safety of the community served by the CFD. This would directly affect the department's ability to respond to emergency incidents affecting its ability to meet the USFA operational goals. Emergency response is one area that the USFA highlights as a goal of the fire service. This area is addressed in its operational objective focusing on actions meant to "improve fire and emergency services' capability to respond to and recover from all hazards" (USFA, 2009, II-2). In addition the Executive Development course within the National Fire Academy's Executive Fire Officer Curriculum stresses the need for every executive fire officer to address proper employee development and departmental succession planning. Without proper planning for future employees the ability to develop and maintain good employees may be directly impacted by the loss of these benefits. While one possible outcome is a maturing of the

workforce another possible outcome is a loss of qualified personnel due to them leaving the department to pursue employment with departments offering this benefit. Without proper research into the effects of these changes the department cannot be fully prepared to deal with the impact no matter which direction they come from.

Literature Review

A comprehensive Literature Review has been conducted as a part of this Applied Research project. This review was conducted by an exhaustive search of various trade journals, periodicals, and scientific reports, on-line articles, fire service magazines and research conducted by organizations such as the Employee Benefits Research Institute (EBRI), the National Fire Protection Association (NFPA), the International Association of Firefighters (IAFF) and others. This review examined four topics which enabled the researcher to gain a better understanding within this research area. These areas included:

1. How and why GASB Statements 43 and 45 will have an impact on Other Postemployment Benefits (OPEB's).
2. The impact that benefits have on retiree age.
3. The impact that age has on firefighter injuries and fatalities.
4. The impact that age has on injuries to persons between the ages of 50 and 65.

In order to understand this topic the researcher felt it is necessary to gain an understanding from the reasoning behind the topic to the possible impacts that it may have. This includes understanding how and why GASB Statements 43 and 45 will impact OPEB's. Decisions pertaining to either subject cannot be made in a vacuum due to the implications that each has on the other.

The issues at the heart of GASB Statements 43 and 45 are OPEB's. These are benefits that exist for retiree's separate from pension plans. "OPEB's generally take the form of health insurance and dental, vision, prescription, or other healthcare benefits provided to eligible retirees, including in some cases their beneficiaries" (Government Accounting Standards Board, 2005, page 5). OPEB's have been around in cities such as Charlotte since the early 70's. As early as 1971 the city of Charlotte extended medical coverage to retirees under 65 at a group rate, however, it was at their own expense (Appendix A).

On the outside OPEB's appear to be great benefits which allow organizations to recruit and retain top notch employees. However, these benefits do not come without a cost. According to Kelley and Ruggieri in their research entitled "*Municipalities Get a Healthy Dose of Reality in Postemployment Benefits*" "the cost of these benefits consists of the annual required contribution (ARS) which can be broken down into two costs:

1. Normal costs: the present value of future benefits being earned by current employees; and
2. Past service cost; the amortization of the unfunded actuarial liability (UAAL), which are benefits already earned by current and former employees but not yet provided for" (page 30).

According to Kelley and Ruggieri "if a municipality contributes an amount less than the ARC, a net OPEB obligation results" this is seen as a liability. These liabilities are considered Unfunded Actuarially Accrued Liabilities and are in essence the actuarially accrued costs for OPEB's that will have to be paid in the future for benefits promised today.

Prior to 2004 state and local governments looked at UAAL's as expenses that had to be dealt with only after the retiree left employment (Coe, 2008, page 1). Using the pay as you go method of funding they did not take into account the actuary portion of these liabilities, thus not taking into account the escalating cost of health care. The National annual growth rate for healthcare spending has averaged 9.6% per year since 1970 (California Healthcare Foundation, 2009, page 18) with 53% of this growth being from the price of medical care (California Healthcare Foundation, 2009, page 22). This has created a drastic increase in healthcare spending per person of 81% between 1997 and 2007 (California Healthcare Foundation, 2009, page 5).

Much of the increase in the cost of health care noted above occurred in the late 90's and early 2000's, however, the Financial Accounting Standards Board (FASB), which develops accounting standards for private companies, recognized this trend and the effect that it would have on companies in the late 80's. FASB recognized that "since payment is deferred, the benefits are a type of deferred compensation" (FASB 105, 1990, page 5) which means that "the employer's obligation for that compensation is incurred as employees render the services necessary to earn their postretirement benefits" (FASB 105, 1990, page 5) forming an obligation to provide these benefits. If these promised obligations remain unfunded then when the employee retires the funds to provide the benefits must come from company finances at that time. With the rate of increase in the cost of medical care this may affect the company's financial stability rendering it incapable of meeting its financial obligations. In order to address this problem FASB issued Statement 106 (FAS 106) *Employer's Accounting for Postretirement Benefits Other Than Pensions* in 1989. This standard "required companies to account for these benefits and report liabilities for the future value of all promised benefits on their corporate balance sheets, beginning with fiscal years after Dec. 15, 1992" (EBRI, 2005, pg 2).

The issuing of FAS 106 in 1989 began a change in the way that future financial obligations were reported on current financial statements for private industry. No changes occurred in the government sector until June of 2004 when the GASB issued Statements 43 and 45 which required the same financial reporting from government entities. “In general, GASB 45 requires states and local governments to report the present discounted value for the future liability of health care promises to current workers as these benefits are accrued along with the present value of these promises to current retirees” (Clark, 2009, page 1). According to Clark, GASB 45 does not require public employers to fund for these liabilities but only to report them. This is done to provide transparency to the future financial obligations public employers are making to their employees.

While GASB 45 does not require that the Unfunded Actuarially Accrued Liabilities (UAAL) coming from OPEB’s be funded the fact that they are required to be reported creates issues. In addition to reporting the UAAL’s, GASB 45 requires public employers to document their plan for dealing with UAAL’s. This plan must show the types of OPEB’s being offered and how these benefits are being funded. There are essentially two ways to deal with the UAAL’s. Public employers can either maintain a pay-as-you-go course of action or fund these future liabilities (either fully or partially).

The first method of funding these UAAL’s is by paying for the expenses in the future as they occur or pay-as-you-go. This method of payment is frowned upon by each of the three main bond rating agencies; Standards and Poor, Fitch Ratings and Moody’s. Each agency states that there will be no immediate impact on the bond ratings of public employer’s (Fitch, 2005; Clark, 2009; and Moody’s, 2009), however, “OPEB liabilities are one of many factors that we evaluate for a credit rating and the liabilities’ overall effect will be realized over time” (Standard and

Poors, 2007, page 3). Due to this type of policy the lack of planning and addressing the funding issue “could impact the bond rating of the public agency” (Moody’s, 2009, page 4) and could create “liquidity problems or tax capacity concerns that might lead to credit deterioration” (Fitch Ratings, 2005, page 2). These statements demonstrate that the policy decisions public employers make in regards to UAAL’s from OPEB’s have a direct impact on the Bond ratings for these employers. This will directly impact the employer’s ability to issue bonds and borrow money.

Another way of dealing with these UAAL’s is to fully or partially fund a plan to limit the liabilities. If an employer decides to fully or partially fund the plan the issue is a budgetary one in which funding for the plan must be maintained. To do this an irrevocable trust fund may be established in which the funds are segregated from other funds and their use is restricted to only expenditures involved with OPEB’s. Discount rates can be applied to the needed contributions to the trust based upon the anticipated rate of return for investments made from the trust. However, these discount rates should be consistent with the amount of return expected from the investments made from the trust (GASB, 2005). This method of planning will allow governments to “ensure long-term solvency” (Fitch Ratings, 2005, page 1), and “will be a stabilizing factor and protective of credit over time” (Fitch Ratings, 2005, page 2).

No matter what, public employers must show the liabilities they have occurred due to OPEB’s. Whether pay-as-you-go, partial funding or fully funding a plan the ultimate goal is to reduce these liabilities. One other method of controlling the liabilities is the reduction or cancellation of these benefits all together. According to Moody’s these new requirements “may lead some to consider changing the plans” (Moody’s, 2009, page 2). In addition Fitch Ratings anticipates that “governments will thoroughly review retiree benefit programs” (Fitch Ratings, 2005, page 1) while Standard and Poor states that “State legislative action may be required to

provide local governments the range of options needed to manage their OPEB liabilities, including authorizing trust funds, reserves, and managing benefit levels” (Standard and Poors, 2007, page 3).

The managing of benefits (specifically retirement benefits) can have many effects on retirements; therefore, it is prudent to understand the impact that benefits have on the age that a person chooses to retire. This brings up the second area to be explored in this literature review, the impact that benefits have on retirement age. This impact can be explored by looking at the importance that employees give to health benefits along with how these benefits are evolving for retirees. This literature review will then look at what happens when you combine these two topics and see how health benefits impact retirement age.

According to the EBRI Value of Benefits Survey conducted in 2001 “60% of Americans reported that health insurance was the most important employee benefit” (Christensen, 2002, page 1). This finding was echoed in a study by the Center for State and Local Government Excellence in 2008 which showed that Health Insurance ranked number one in what workers want from a job (Coe, 2008, page 2). While this holds true for most employees as an employee gets closer to retirement age retirement health benefits become more important. This is demonstrated by the fact that “only 48% of workers age 60 or older chose that benefit as the most important. Workers age 60 or older were more likely than other age groups to prefer long-term care insurance and retiree health insurance” (Christensen, 2002, page 2). This finding demonstrates that health insurance as it impacts individuals at that precise time or in the near future is overwhelmingly the most important benefit to the majority of employees.

The importance of health benefits to employees and what they mean to their future plans cannot be underestimated. Neither can the impact that providing these benefits has on the

employer. With the steady increase in life expectancy from 70.8 years in 1970 to 77.4 years in 2003 (CDC, 2007, Table 12, page 34), the availability of workers for the US workforce has increased. This has led to a US policy that aims at encouraging workers to remain in the workforce longer. This is demonstrated by the phased-in increase in the minimum retirement age for Social Security and the elimination of mandatory retirement (EBRI, 1997, page 3).

Along with this trend in workers remaining in the workforce longer is a trend towards the erosion of retiree health benefits precipitated by FASB 106 and GASB 43 and 45. Since 1993 there has been a steady decrease in the percentage of employers with 500 or more employees who offer health insurance for retirees. In 1993 46% offered these benefits to early retirees with 40% offering them to Medicare eligible retirees. This number has steadily decreased to 28% offering these benefits to early retirees and 21% offering them to Medicare eligible retirees in 2009 (Frostin, 2010, Fig 1 page 14).

The erosion of health benefits for early retirement directly affects those in the 55-64 year age bracket which according to Christensen is part of the group that places long term care and retiree health as the most important employee benefit (Christensen, 2002, page 2). This group, along with children, were determined by EBRI to be the group most likely to have health insurance in 2007, with only 12% being uninsured (Frostin, EBRI, 2010, page 1). One surprising trend noted in this EBRI study is the fact that persons between the ages 55 to 64 are no more less likely to be uninsured in 2007 than in 1995 while all other groups are more likely to be uninsured in 2007 than in 1995 (Frostin, EBRI, 2010, page 2). During this same timeframe the percentage of individuals between the age of 55 and 64 that participate in the labor force had increased from 67% to 69.6% in males and from 49.6% to 58.2% in females (Frostin, & Salisbury, 2008, Fig 18, page 23). Additionally, at the same time the percentage of retirees in this age group without

health care insurance increase significantly from 13.9% being uninsured in 2007, at its lowest point since 1994, with the exception of 2000 where it was at 55.5%.

Why is it that even with the steady erosion of health care benefits for retirees (Frostin, 2010, Fig 1 page 14)(Frostin, & Salisbury, 2008, Fig 11, page 16), persons between the ages of 55 and 64 are no more or less likely to be uninsured in 2007 than in 1995 (Frostin, 2009, page 2)? One argument for this, as noted by Frostin and Salisbury in 2008, is that they are still working (Frostin, & Salisbury, 2008, Fig 18, page 23). This argument is supported by a number of studies (EBRI, 1997), (Karoly, & Rogowski, 1998, ¶ 13), (Frostin, 1999) and (French, & Jones, 2007) which show that the availability of retiree health insurance directly affects the age at which a person decides to retire. In a poll commissioned by the EBRI and The Gallup organization in 1993 “61% of workers reported that they would not retire before becoming eligible for Medicare if their employer did not provide retiree health benefits” (EBRI, 1997, page 5). The following year the Rand Corporation researchers Karoly and Rogowski found that “by observing the retirement behavior for a sample of men in the SIPP from 1984 to 1988, Karoly and Rogowski document that health insurance is indeed an important determinant of early retirement among male workers. A multivariate analysis shows that for men ages 55 to 62, the offer of continued health insurance coverage through an employer had a positive effect on the likelihood of early retirement”.(Karoly, & Rogowski, 1998, ¶ 13). This finding was mirrored in a 1998 poll by EBRI which showed that “74% of workers reported that they would not retire before becoming eligible for Medicare if their employer did not provide retiree health benefits” (Frostin, 1999, page 39). According to Frostin the further a male is from being eligible for Medicare the more the accessibility of health insurance impacts his decision to retire. Statistically the effect of health insurance accessibility on women was insignificant (Frostin,

1999, page 42). These findings were reestablished again in 2007 in an empirical study entitled *The Effects of Health Insurance and Self Insurance on Retiree Behavior* by French and Jones which gave quantitative analysis to the same research. French and Jones show that:

The effect of health insurance can also be measured by comparing participation rates. We find that the labor force participation rate for ages 60-67 would be 6.0 percentage points lower if workers had retiree, rather than tied, coverage at age 59. Much of this difference is due to an immediate, 4.7-percentage-point drop in participation at age 59, when the simulations begin—the main effect of retiree coverage is to encourage early retirement—but there is still a significant effect at later years. Yet another way to measure the effect of health insurance is consider the retirement age, defined here as the oldest age at which the individual worked. Moving from retiree to tied coverage increases the average retirement age by 0.41 years. (pg. 39)

These findings give quantitative credence to research which has been traditionally qualitative showing that retiree health care impacts the age that employees retire.

The literature reviewed shows through both quantitative and qualitative analysis that the absence of retiree health care insurance will impact the age that employees choose to retire. The impacts that this will have on the CFD can be explored in many ways. With the possibility that employees will begin to retire at later ages it is prudent to look at how this age shift affects firefighter injuries. This brings to light the third topic which will enable the researcher to gain a better understanding of this research area; the impact that age has on firefighter injuries and fatalities.

There are three ways to look at how age impacts firefighter injuries and fatalities. These are how age impacts fatalities and injuries overall, how age impacts specific causes of fatalities and injuries along with how age impacts the recovery from injuries. In October of 2009 the United States Fire Administration (USFA) published an updated report entitled *Firefighter Fatalities Historical Overview* (USFA, 2009). In this report they analyzed on duty firefighter fatalities from 1977-2008 in order to give statistical meaning to the causes. Since 1977 3,220 firefighters have died in the line of duty averaging 103.9 per year. When age is factored into this data for the years 1990-2000 the USFA shows that:

Approximately 60% of firefighter fatalities were over the age of 40 when they were killed and one-third were over 50. Nationally, firefighters over the age of 40 comprise 46% of the fire service, with those over 50 accounting for only 16% of firefighters. Although older firefighters possess a wealth of invaluable knowledge and experience, they are killed while on duty at a rate disproportionate to their representation in the fire service. Also, these older firefighters tend to be affiliated with volunteer agencies. About 40% of volunteer firefighters are over the age of 50, compared to only 25% of career firefighters. (pg 2)

With only 25% of career firefighters being over the age of 50 it makes sense that only 23% of career firefighter deaths in 2008 occurred in career firefighters over the age of 50 but under 65 (NFPA, 2009, page 20). However, during this same timeframe 26% of volunteer firefighter fatalities occurred in volunteer firefighters over the age of 50 but under 65 while this age group made up 40% of the volunteer firefighting force (NFPA, 2009, page 20),

Much of the research done about firefighter fatalities shows that the majority of career firefighter deaths occur in firefighters between the ages of 30-55, equaling 86% in 2008 (NFPA,

2009, page 20), In addition this same research shows that deaths among volunteer firefighters is spread equally throughout the age groups with spikes in the 21-25, 61-65 and over 70 age groups (NFPA, 2009, page 20). It can be inferred from this information that there are fewer deaths in career firefighter over the age of 50 due to their fewer numbers. In addition, as they progress through their careers they move up in rank to supervisory positions (Lee, Fleming, Gomez-Marín, & LeBlanc, 2004, page 2).

In addition to fatalities age should be looked at as to how it impacts firefighter injuries. Firefighters injuries have been on the decline from 1981 (103,340) to 2008 (79,700) along with the incidents of fire. In 2008 45.9% of all firefighter injuries occurred on the fireground (NFPA, 2009, page 7). While these numbers may seem high it must be noted that “more than half of firefighter injuries (52%) result in no lost work time” and “about 30% of firefighter injuries result in lost work time with the bulk of these injuries (29%) moderate in severity” in addition “less than 2 percent of injuries are severe or life-threatening. The severity of the injury was not specified for 18% of the reported firefighter injuries” (NFPA, 2009, page 20).

When this injury data is broken down into age it can be said that “firefighter injuries, in general, track the percentage of firefighters in each age group-the more firefighters there are in an age group, the more injuries there are” (NFPA, 2009, page 20). This is supported by the fact that in 2004 firefighters between the ages of 40-49 made up 27.1% of the nations firefighters while accounting for 26% of firefighter injuries. During this same timeframe firefighters above the age of 50 accounted for 18.6% of firefighters and 11.3% of firefighter injuries (USFA, 2008, page 12, fig 13). According to the USFA the majority of injuries among younger firefighters are related to smoke inhalation and exhaustion and the majority of injuries among older firefighters are related to strains and sprains (USFA, 2008, page 11). The inference that older firefighters are

less likely to be injured is mirrored by Lee et al where it is stated that “relative to other employed adults in the same age group, the risk of hospitalization was significantly increased for firefighters aged 30 to 39 years and significantly lower for firefighters aged 50 to 64 years” (Lee et al, 2004, page 1). However, Lee et al goes on to state that “the lower risk of hospitalization among older firefighters may reflect, in part, a reduced occupational risk as these individuals move into more supervisory positions” (Lee et al, 2004, page 1). While these findings seem very strong they cannot be looked at in a vacuum. It must be understood that while current injury rates for older firefighters are low they are directly proportionate to the numbers of older firefighters and “firefighter injuries, in general, track the percentage of firefighters in each age group-the more firefighter there are in an age group, the more injuries there are” (NFPA, 2009, page 20).

Each of the examined studies above simply looked at the data from specific years and examined the relationships within this data. In a study entitled *The Relation between Age and Duty-Related Injuries in Urban Firefighters I* researchers from the National Institute for Occupational Safety and Health conducted a surveillance study of firefighters from two U.S. metropolitan fire departments. Participants in this study completed surveys about on the job injuries between 1995 and 1997. This study showed that “in the older cohorts, there was significant increase in both the percentage of firefighters reporting duty-related injury and in the percentage reporting the after-effects of their duty related injury” in addition “the most commonly reported injuries were musculoskeletal” (Beaton, Johnson, Salazar, & Murphy 2000, ¶ 4). This finding demonstrates that even when other methods of research are conducted it can be argued that as firefighters get older they are more prone to injuries.

Not only is it necessary to look at firefighter fatalities and injuries from an overall viewpoint but it is also important to look at how age effects specific causes of fatalities and injuries. For this research an examination of the leading cause of firefighter fatalities (Heart Attacks) and the leading cause of firefighter injuries (Sprains and Strains) will be examined.

Year to year it can be consistently noted that heart attacks are the single leading cause of firefighter fatalities. For example between 1994 and 2004 39% of career firefighter fatalities (142) and 50% of volunteer firefighter fatalities (306) were due to heart attacks (CDC, 2006, page 454). When these fatalities are broken down by age group it can be noted that the overwhelming majority of these deaths occur between the ages of 45 and 65 (CDC, 2006, page 454, fig 1). Percentage wise it is easily understood why the majority of volunteer firefighter deaths are due to heart attacks. With the overwhelming majority of volunteer firefighters over the age of 50 (40%) (USFA, 2009, page 2) and the fact that “firefighter injuries, in general, track the percentage of firefighters in each age group-the more firefighters there are in an age group, the more injuries there are” (NFPA, 2009, page 20), it can be inferred that as the age of career firefighters increases so do their risks of having a heart attack. With this being the case it can also be inferred that firefighters over the age of 40 will continue to be “killed on duty at a rate disproportionate to their representation in the fire service” (USFA, 2009, page 2).

Within the realm of firefighter deaths due to heart attacks it should be noted that these heart attacks are consistently considered the result of stress/overexertion. Between 1994 and 2004 97% of career firefighter deaths due to heart attacks and 98% of volunteer firefighter deaths due to heart attacks fell within this category (CDC, 2006, page 454). These deaths are due to causes that are individual in nature but when taken as a whole studies show that they are generally a combination of such things as environment and the health of the firefighter. In such studies as

Thermoregulatory Demands During Firefighting Activities conducted by Robbie Durand it is suggested that “even during training exercises, body core temperatures are approaching critical levels and more than likely during real life encounters body core temperatures will rise even higher” (Durand, 2007, ¶ 4). In addition studies show that when compared to non-emergency duties, emergency duties and physical training place firefighters at greater risks for heart attacks and the risk of death from heart attacks is 10 to 100 times higher during fire suppression activities (Kales, Soteriades, Christophi, & Christiani, 2007, page 1211).

“Little doubt remains regarding the dangers of heart disease for firefighters” (Womack, Green, & Crouse, 2000, page 1), it has been documented in numerous studies that firefighters are at an increased risk of heart attack (Womack et al, 2000, page 1), (Bernard & Weber, 1979) and (Feuer & Rosenman, 1986). Many of the firefighter deaths from heart attacks occur in firefighters with documented heart conditions (Womack et al, 2000, page 544), (Kales et al, 2007, page, 1213). This coupled with the fact that the aerobic capacity of most firefighters declines over time (Womack et al, 2000, page 546) further support earlier findings that as firefighters get older their risk for heart attacks increases (CDC, 2006, page 454, fig 1).

In the category of firefighter injuries sprains/strains consistently leads the way in causes (Rand, 2004, page 8). A 2002 study by the USFA showed that in 1999 44% of firefighter injuries were either sprains or strains (USFA, 2002, page 1) and a 2009 study by the NFPA showed that in 2008 53% of fireground injuries were either sprains or strains (NFPA, 2009, page 12, table 2). The International Association of Firefighters agrees stating that “sprains and strains routinely account for approximately 50% of all line-of-duty injuries and back injuries account for approximately 50% of all line-of-duty injury retirements each year” (IAFF, n.d.). In addition “Overexertion accounted for a significant portion (over 1/3) of injuries to firefighters, typically

involved injuries to the back, and was associated with significantly higher costs than other types of injuries” (Walton, Conrad, Furner, & Samo, 2003). While these sprains and strains occur in firefighters of all ages they are the most prevalent cause of injuries in older firefighters (USFA, 2008, page 11).

While the impact that injuries have on the individual are important to keep in mind, the impact that these injuries have on the department and governing body must be taken into consideration also. According to Walton et al “overexertion is a costly source of injury to firefighters” of which “the average worker’s compensation claim for injuries caused by overexertion was \$9,715” (Walton et al, 2003). It can be predicted that of the injuries suffered by firefighters older firefighters will suffer longer duration injuries (Arvey, Butler, Liao, & Nutting, 2001, page 239). Identifying the high-risk employees allows agencies to plan for potential needs. Arvey et al identified older firefighters and firefighters who suffer sprain and strain injuries as such employees (Arvey et al, 2001, page 240).

With the ability to identify employees at a high risk of longer duration injuries agencies can also identify the possible financial impacts of these injuries. By looking at the average cost per injury noted in research such as *The Economic Consequences of Firefighter Injuries and Their Prevention* by the TriData Corporation agencies can see the direct financial impact that injuries have. According to TriData in 2002 the average comprehensive cost for minor injuries is \$6,207 while the average comprehensive cost for moderate injuries is \$64,793 (TriData, 2004, page 33, Table 14). This study identifies that one way to decrease the cost of medical payments and covering injury leave is to decrease the number of injuries (TriData, 2004, page 41). The first step is to identify those who are prone to injuries.

It is difficult to understand how age affects injuries in firefighters without understanding how age impacts injuries with the general population. It is common knowledge that older people can be more injury prone; however, how this applies to the 50 to 65 year old age group has not been clarified. There has been a great deal of research done into how age affects injuries for specific fields including railroad workers (Gauchard, Mur, Touron, Benamgar, Perrin, Chau & Dehaene, 2006) where it was found that younger employees are subject to higher injury rates. In direct contradiction to this finding is a study entitled *Relationship between job, lifestyle, age and occupational injuries* where it was shown that “the risk of injury was higher for workers aged \geq 45 than of those aged $<$ 30 or 30-44” (Chau, Bhattacharjee, Kunar, & Lorhandicap Group, 2009, page 117). This study did not differentiate between the types of jobs being performed but instead looked at the impact of various types of physical job demands (PJD’s). This study was supported by a study examining coal miners which showed that older workers have a higher risk of injury (Ghosh, Bhattacharjee, & Chau, 2004, page 475). Ghosh et al point out that many times young age is associated with risk taking behavior which could explain why it is viewed as a risk factor. They also point out that age is a well know risk factor. They also indicate that the way the research is set up sometimes determines whether age impacts injury rates on the younger or older end of the spectrum (Ghosh et al, 2004, page 475).

The information reviewed here has given the researcher the basics from which to begin answering the research questions. It has enabled a comprehensive understanding of why GASB 43 and 45 are affecting OPEB’s. In addition it has demonstrated how age effects retirement decisions as well as injuries and fatalities in firefighters and other workers. It has more importantly showed that age does affect how we do business.

Procedures

The first step used to conduct this Applied Research Project consisted of a literature review to determine what previous research discovered in regards to the research questions. To accomplish this, an exhaustive search was conducted on the internet using a number of search engines including; Google, Yahoo, Lexus-Nexus and Academic Search Premier. The Lexus-Nexus and Academic Search Premier searches were conducted through the NC Live portal on the Public Library of Charlotte and Mecklenburg County website. The literature review was broken down into four questions each of which was aimed at aiding the researcher in analyzing the research questions from outside the vacuum of the City of Charlotte.

After an extensive literature review it was decided that the descriptive method of research would be used. This enabled the researcher to determine the possible impacts that the loss of retiree health care insurance will have on the firefighting force for the city of Charlotte. In addition it will show how the opinions of the current firefighters relate to research conducted for other populations. In order to effectively complete this research the necessary data was collected that relates to each research question. By treating each question individually the researcher was better able to determine what data needed to be collected.

The first research question to be addressed was: What impact will the loss of retiree health care have on the age that firefighters retire at? The answer to this question will help to determine how the loss of retiree health insurance will affect the age at which CFD firefighters retire. This question was addressed by the creating and disseminating one survey (Appendix B) to firefighters who are currently in the Operations Division of the CFD and a second survey to firefighter recruits who are currently in the CFD training academy (Appendix C). These firefighter recruits are the first group of employees to be effected by the change in retiree health

insurance benefits. An additional survey (Appendix D) was distributed to current CFD retirees. These surveys were disseminated and collected through the use of the CFD's survey monkey account. Additionally, those retirees who did not have access to email had a copy of the survey with a self-addressed envelope included with their retirement check.

Once the surveys were collected they were analyzed and compared to the retirement data collected during the literature review. This allowed the researcher to determine how the opinions of CFD employees compared to those of other previously surveyed persons in order to determine if the same findings from previous research should be anticipated in the department's future.

The second research question to be answered was: What role does age play in firefighter fatalities and injuries? This question was answered by analyzing CFD data regarding the most recent LODD's as well as injury data from the previous 3 years. This data was sorted to determine the age of the firefighter injured the type of injury and whether the injury resulted in lost time or restricted duty time. This data was then compared to the data collected through the literature review in order to determine if the CFD followed the same trends as other departments. This will allow the researcher to determine if the findings from others research should be anticipated for the CFD.

The third and final research question to be answered was: What major injuries or illnesses typically occur in Charlotte Fire Department retirees between the ages of 50 and 65? This question was answered through the same survey sent to current department retirees. This survey was emailed to those who have email addresses registered with the retirement system. Other surveys were sent to those without email addresses by including them in their checks along with self-addressed envelopes. Once collected these surveys were analyzed and compared to the data

collected during the literature review to determine if CFD retirees follow the same patterns as others individuals their age.

Limitations and Assumptions

This research and specifically the surveys used in this research were conducted in an unscientific manner. Of the literature reviewed there was a large amount of research that dealt with the types of injuries that firefighters sustain. However, there was little data tracked in regards to how age impacted these injuries. Due to the low number of career firefighters in urban areas above the age of 55 there is little data to show how working in an urban environment is affected by age.

In regards to the various surveys used for this research the method used for dissemination did not allow the researcher to verify that multiple responses from the same respondents were not obtained. In addition the basic assumption of truthfulness was made for survey respondents. Of the survey's distributed to approximately 1035 employees currently serving in the operations bureau of the department only 329 were returned for a response rate of 32.9%. A follow up email was sent to department supervisors which resulted in a slight increase in survey respondents. Of the 67 firefighter recruits surveyed 100% responded and of the 450 current fire department retirees surveyed 66 responded for a response rate of 15%.

Results

In order to gain an understanding of the various impacts on the CFD's firefighting force that could result from the loss of health care insurance for retirees the first research question must be answered: What impact will the loss of retiree health care have on the age that firefighters retire at? This question was answered by the use of surveys developed to answer supporting questions.

These surveys were distributed to current operations personnel (Appendix B), current firefighter recruits (Appendix C) and current members of the Charlotte Firefighters Retirement System (Appendix D). The answers to these questions will be analyzed within the three subsets then as a whole.

The first subset surveyed was current retiree’s or members of the Charlotte Firefighters Retirement System. There are currently 450 actual retirees (Avard, personal communication, March 19, 2010) within the retirement system. Of these retirees 66 responded to the survey request. They were questioned about their current age, the age they retired at, their feelings towards health care insurance and retirement as well as the medical issues they experience or are experiencing. Table 1 shows the ages of the respondents. According to respondents 77.2% of them fall into the age range that new hires, which choose to retire at 50, will be in without health care insurance. Therefore, this group truly reflects the population in question.

Table 1: Retiree Survey Respondents Age

What is your current age?		
Answer Options	Response Percent	Response Count
Less than 50	0.0%	0
50-53	10.6%	7
54-57	22.7%	15
58-61	22.7%	15
62-65	21.2%	14
65-70	15.2%	10
70-80	7.6%	5
Over 80	0.0%	0
	<i>answered question</i>	66
	<i>skipped question</i>	0

The average age of CFD retiree’s is 52 years old with 27 years of service (Avard, personal communication, March 19, 2010). Table 2 reinforces this finding by showing that of the 66 respondents 66.7% retired between 50-53 years of age.

Table 2: Retiree Survey Respondents Age at Retirement

At what age did you retire?		
Answer Options	Response Percent	Response Count
Less than 50	10.6%	7
50-53	66.7%	44
54-57	21.2%	14
58-61	0.0%	0
62-65	0.0%	0
Over 65	1.5%	1
<i>answered question</i>		66
<i>skipped question</i>		0

When asked whether or not they would have retired at this age without retiree health care insurance an overwhelming 86.4% stated that they would not have retired at the age that they retired at without retiree health care insurance. This is troubling when compared to Table 3 which shows that 62.1% of respondents felt they were not physically capable of performing the duties of a firefighter effectively enough to remain on the job between ages 50 to 57.

Table 3: Age Unable to Perform Firefighter Duties

At what age do you feel you were not physically capable of performing the duties of a firefighter effectively enough to remain on the job?		
Answer Options	Response Percent	Response Count
Less than 50	4.5%	3
50-53	31.8%	21
54-57	30.3%	20
58-61	19.7%	13
62-65	10.6%	7
Over 65	3.0%	2
<i>answered question</i>		66
<i>skipped question</i>		0

The next subset to be surveyed was the 1035 firefighters currently serving within the department ranks. Of these 1035 personnel 392 replied to the survey. Table 4 shows the breakdown of the ages of the respondents. It should be noted that the two largest groups of respondents are all within 9 years of being eligible (by age) to retire (39%) and those that have the longest time until retirement had the fewest responses.

Table 4: Current Employees Age

What is your current age?		
Answer Options	Response Percent	Response Count
18-25	4.6%	15
26-30	10.6%	35
31-35	17.0%	56
36-40	19.1%	63
41-45	19.5%	64
46-50	19.5%	64
51-55	8.5%	28
56-60	1.2%	4
Over 60	0.0%	0
<i>answered question</i>		329
<i>skipped question</i>		0

As demonstrated in Table 5 when it comes to retirement 59.6% of respondents stated that they were planning upon retiring at 50-53 years of age. This falls directly in line with the average age of 52 which CFD firefighters have historically retired at (Avard, personal communication, March 19, 2010).

Table 5: Intended Age of Retirement

At what age do you plan on retiring?		
Answer Options	Response Percent	Response Count
Less than 50	2.4%	8
50-53	59.6%	196
54-57	28.6%	94
58-61	7.3%	24
62-65	1.8%	6
Over 65	0.3%	1
<i>answered question</i>		329
<i>skipped question</i>		0

It is interesting to note that while the majority of respondents stated that they planned upon retiring between 50-53 years of age 84.5% stated that the lack of retiree health insurance would impact the age that they choose to retire at. Table 6 shows how they feel the lack of health care insurance would impact their retirement decision. While according to the majority of respondents this would not delay their retirement indefinitely, it would add years to their decision to retire.

Table 6: Health Care Impact on Retirement

How would this impact your decision to retire?		
Answer Options	Response Percent	Response Count
Prolong retirement by 2 years	13.1%	43
Prolong retirement by 5 years	40.7%	134
Prolong retirement by 10 years	10.9%	36
Prolong retirement indefinitely	18.2%	60
Would not affect decision to retire	17.0%	56
<i>answered question</i>		329
<i>skipped question</i>		0

Two troubling replies were made to questions asked when 52% of respondents answered that they would hide medical conditions or physical conditions that would affect their ability to perform the duties of a firefighter in order to maintain employment as well as maintain health care insurance. In addition when asked if the lack of retiree health care insurance, through either years of service or disability, would affect the decisions they make or how they perform their job as a firefighter 43.3% stated that it would. While much can be read into these answers and how they can be interpreted the final question demonstrates the level of importance this benefit has with current employees. When asked 93.6% of respondents stated that they felt guaranteeing retiree health care insurance for all firefighters was worth making concessions for.

The third and final subset to be surveyed was 67 current firefighter recruits. These recruits are the first group of employees to be hired since the removal of retiree health care insurance from the employee’s benefits packages. The age range of the recruits varies (Table 7) with the majority of recruits being in the 18-25 year range.

Table 7: Recruit Ages

What is your current age?		
Answer Options	Response Percent	Response Count
18-25	56.7%	38
26-30	14.9%	10
31-35	22.4%	15
36-40	4.5%	3
41-45	1.5%	1
46-50	0.0%	0
Over 50	0.0%	0
<i>answered question</i>		67
<i>skipped question</i>		0

This break down is mirrored by the age that employees will be eligible to retire (Table 8). With the overwhelming majority eligible to retire between the ages of 45 and 55 they will spend many years without health care before they are eligible for Medicare.

Table 8: Ages Recruits Eligible to Retire

At what age will you be eligible to retire with 25 years of service?		
Answer Options	Response Percent	Response Count
45-50	55.2%	37
51-55	16.4%	11
56-60	19.4%	13
61-65	7.5%	5
Over 65	1.5%	1
<i>answered question</i>		67
<i>skipped question</i>		0

Recruits mirrored the historical average for retirement age with 43.3% stating that they planned on retiring between 50-53 years of age while 28.4% stated they planned upon retiring between 54-57 years of age. One odd response was that 26.8% of recruit respondents stated that

they planned on retiring at or beyond 58 years of age. This is odd in that only 9.4% of current employees and 1.5% of retirees either planned upon or retired beyond the age of 62. It is evident that the impact of this change in policy is already taking hold.

When asked how the lack of retiree health care insurance will impact their retirement decisions 76.1% stated that it would. Table 9 demonstrates how they feel that this will impact their decision. These findings relate similarly to those of current employees.

Table 9: Healthcare Impact on Recruit Retirement

How would this impact your decision to retire?		
Answer Options	Response Percent	Response Count
Prolong retirement by 2 years	14.9%	10
Prolong retirement by 5 years	41.8%	28
Prolong retirement by 10 years	9.0%	6
Prolong retirement indefinitely	16.4%	11
Would not affect decision to retire	17.9%	12
<i>answered question</i>		67
<i>skipped question</i>		0

When asked about how the lack of this benefit would affect them as an employee, recruits responded similar to current employees with 58.2% stating that they would work past the age that they felt they could effectively perform the duties of a firefighter. In addition 67.2% stated that they would continue their employment with the CFD solely for the purpose of maintaining health care insurance. However, unlike current employees, only 35.9% of the recruit respondents stated that they would hide medical or physical conditions that would affect their ability to perform the duties of a firefighter in order to maintain employment as well as health care insurance.

Employee secession is always a concern within the fire service. Departments expend a great deal of time and money to train employees so that their services can be provided on a consistent basis to the citizens they serve. Recruits were asked if the lack of retiree health care insurance might influence any future decisions they would make to leave the CFD for employment elsewhere. Responses to this question were concerning in that only 68.7% stated that it would not. With 31.3% of recruits implying that they would consider leaving employment with the CFD at sometime in the future due to a lack of retiree health care insurance, there is a strong probability that an impact will be felt in retention rates sometime in the future.

Through the survey responses of these three population sets it can be safely inferred that the lack of retiree health care insurance will impact the age of firefighter retirements. While this impact remains to be seen, through the surveys conducted with this research it bears a strong possibility that the average age of retirement will extend to 57 years of age or beyond. With the possibility of an aging workforce it is imperative to know the impact that this may have on the firefighting force. One variable that directly impacts a firefighting force is its injury rate. This makes it very important to gauge how age impacts firefighter injury rates. To evaluate this, the second research question to be addressed is: What role does age play in firefighter fatalities and injuries?

According to the USFA, “between 1990-2000 60% of firefighter fatalities occurred in firefighters over the age of 40 while 1/3 occurred in firefighters over the age of 50” (USFA, 2009, page 2). During this timeframe the CFD experience no LODD’s, however, during the 2000 to 2010 timeframe the CFD has experienced 4 line of duty death (LODD) events, before that time the most recent LODD was 1968. Of the 4 most recent LODD’s two were determined to be cardiac related with the third be a pulmonary embolism and the fourth due to thermal burns.

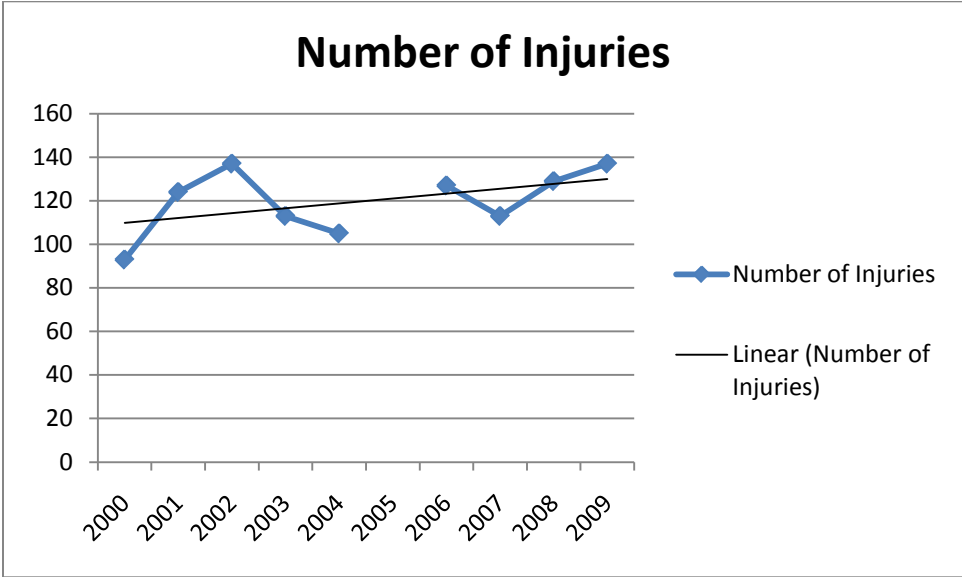
The two cardiac related LODD's occurred in a 50 year old male Captain who was participating in live fire training and a 44 year old male firefighter who was participating in physical conditioning training. The third death occurred in a 46 year old male firefighter engineer. This death was due to a pulmonary embolism as a result of knee surgery to repair a knee injury sustained at a multi-alarm fire. The final LODD occurred in a 22 year old male firefighter who was working off duty for a neighboring fire department. This death was a result of organ failure due to thermal burns over 80% of the firefighter's body sustained during a floor collapse into a burning basement.

When compared to the latest NFPA statistics the ages of CFD members break down very similar to those of the remainder of the nation's firefighters. The NFPA reports that in 2008 46% of the nation's firefighters were older than 40 years of age (NFPA, 2009). At this point in time 41% of the members of CFD fall into this same age bracket. Therefore comparatively speaking the CFD is very similar to the remainder of the nation's fire departments when it comes to department profile. In terms of LODD's, even with such a small sample population, the CFD is actually higher than the remainder of the nations fire departments. Between 2000 and 2010 75% of the CFD's LODD's occurred in firefighters over the age of 40. During this same timeframe 60% of the nations firefighter deaths occurred in this age bracket.

While firefighter fatalities can be the most tragic events in a fire departments history, year to year firefighter injuries can have a bigger impact on department operations both financially and operationally. According to the NFPA since 1981 firefighter injuries has been on a decline, however, it must be noted that in 1994 the NFPA began reporting exposures separately from injuries. This point in time seems to be when a more dramatic decline in injuries began. The CFD has not followed this trend since 2000. Chart 1 shows how many firefighter injuries the

CFD has experienced between 2000 and 2009, with the exception of 2005 where the data was unavailable (Pillar, personal communication, March 26, 2010). Unlike the NFPA data the CFD has experienced a fluctuation in firefighter injuries over this timeframe resulting in an upward trend.

Chart 1: CFD Injuries 2000-2009



This data shows that while the remainder of the nation’s fire service is on a downward trend for firefighter injuries the CFD remains on an upward trend.

For the purpose of this research the CFD injury data was collected for the calendar years 2007, 2008, 2009 (Appendix E). This data was then compared to the NFPA finding that “firefighter injuries, in general, track the percentage of firefighters in each age group-the more firefighter there are in an age group, the more injuries there are” (NFPA, 2009, page 20). For the CFD firefighter injury experience this statement has reaffirmed itself. Table 10 shows how the CFD firefighter injury percentages compare to the total population percentages.

Table 10: Firefighter Injuries Compared to Firefighter Age

Firefighter Injuries Compared to Firefighter Age										
AGE	18-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	60+	TOTALS
Percentage of Firefighter Population	6%	15%	19%	19%	17%	13%	8%	3%	0.20%	
Total Injuries	42	58	86	74	60	53	21	5	1	400
Percentage of Firefighter Injuries	10%	15%	21%	19%	15%	13%	5%	2%	0.20%	

When looking at the percentage of firefighters in an age bracket the percentage of firefighter injuries matches to within one to two percentage points in most brackets. This demonstrates further that the number of firefighters in a certain age bracket accurately predicts the number of firefighter injuries for that population.

In the category of firefighter injuries sprains/strains consistently leads the way in causes (Rand, 2004, page 8). A 2002 study by the USFA showed that in 1999 44% of firefighter injuries were either sprains or strains (USFA, 2002, page 1) and a 2009 study by the NFPA showed that in 2008 53% of fireground injuries were either sprains or strains (NFPA, 2009, page 12, table 2). These percentages hold true when applied to the CFD. Between the years of 2007-2009 43% of firefighter injuries were reported in the category strain, sprain, and muscular pain with 6% of these injuries being in firefighters over the age of 50.

It should be noted that firefighters employed during or before the year 1985 have reached their 25 year commitment and if they are 50 years of age they are eligible to retire. Currently there are 63 firefighters employed by the CFD that have their 25 years of service amounting to 6% of the workforce. Of these 63 firefighters 21% (13) are Chief Officers from the Battalion Chief rank to the Fire Chief, 40% (25) are Captains, 31% (20) are Firefighter Engineers and 8%

(5) are Firefighters. This demonstrates that 61% of those firefighters eligible by years of service for retirement are in supervisory roles. An additional 31% are in the Firefighter Engineer role which places them in a position in which they do not participate in active fire fighting in an IDLH atmosphere on a consistent basis. While this may reduce the level of danger they are exposed to, it does not reduce the exposure to injury prone activities.

When compared to the rate of injury for this age bracket this 6% of the workforce accounted for 7% of injuries. Of the 400 injuries documented during this timeframe 28 (7%) resulted in 491 lost days with those over 50 accounting for 11% of lost day accidents and 7% of the lost days. This shows that while the injury rates are proportional to the number of employees in this age bracket the amount of time lost is not. When looking at the number of restricted day injuries 20% resulted in restricted time of which the over 50 age bracket accounted for 9%. However, this age bracket accounted for 13% of the restricted days. One thing that was not controlled for in these statistics was the fact that only 39% of those firefighters over the age of 50 are in non-supervisory roles. Further research on this is needed to determine this impact.

Understanding firefighter fatalities and injuries helps when planning department programs, however, if the age of firefighters increases the ability to make comparisons to current data will decline. Understanding the types of and severity of the injuries encountered by recent retirees and retirees that fall into the 50-65 year old age group will better prepare the department for the future. To understand this better the final research question to be addressed is: What major injuries or illnesses typically occur in Charlotte Fire Department retirees between the ages of 50 and 65?

There are currently 450 retirees in the Charlotte Fire Firefighter Retirement System (Avard, personal communication, March 19, 2010). Unfortunately of the 450 retirees only 66 responded to the survey for a return rate of 15%. While this responses does not allow any strong assumptions to be made it does give an indication of the nature of injuries sustained after a career in the CFD. It has long been accepted that firefighting is a young man’s job. This occupation subjects firefighters to abuses of both the mind and the body. These abuses take a toll on the body over years. It is noticeably apparent that as firefighters age they begin to experience the effects of these stresses. Table 11 demonstrates the types of injuries that the CFD retirees experience between the ages of 50-65. The aches and pains add up over time and can eventually begin to effect performance. A large majority of respondents reported experiencing these types of reoccurring nuisances.

Table 11: Impact of Age on Injuries

What type of health issues did you or are you experiencing between 50-65 years of age? (Check ALL THAT APPLY)		
Answer Options	Response Percent	Response Count
Minor non-back related orthopedic (reoccurring nuisance issues)	56.5%	35
Major non-back related orthopedic (issues effecting your quality of life)	17.7%	11
Back injuries	32.3%	20
Major non-cardiac related medical issues (issues effecting your quality of life)	21.0%	13
Cardiac related issues	22.6%	14
	<i>answered question</i>	62
	<i>skipped question</i>	4

As noted in Table 11 over half of the respondents state that they experienced minor non-back related orthopedic issues while 17% experienced major non-back related orthopedic issues.

Back injuries were the second leading issue experienced by the respondents. However, when combined both cardiac related issues affected 43.6% of respondents.

When asked what other issues they experienced between 50-65 years of age that they felt would have negatively impacted their ability to effectively perform the duties of a firefighter the responses ran the entire spectrum of medical issues. Respondents reported everything from diabetes, to hearing loss, cancer, to emphysema, and sleep issues. Table 12 shows the age that they each began experiencing these job impacting issues.

Table 12: Age that Injuries Began Impact

At what age did you experience these issues?		
Answer Options	Response Percent	Response Count
Less than 50	33.9%	21
50-53	29.0%	18
54-57	14.5%	9
58-61	16.1%	10
62-65	3.2%	2
Over 65	3.2%	2
<i>answered question</i>		62
<i>skipped question</i>		4

This table demonstrates that many of the respondents report that these issues began before retirement age, however, the majority began during the 50-65 age brackets.

While not necessarily a high enough survey response rate to justify any logical inferences or even assumptions the respondents did document that between the age of 50 and 65 medical issues do arise. As to the accurateness of the severity of the diagnosis, this research does not determine how it would have affected their job performance. Many respondents made it a point to document on their survey that they felt that they would not have been able to function

effectively enough to perform the job as it should be or even enough to support other firefighters as they did the job.

Discussion

While knowing the attitudes and opinions of each subset is very important it is just as important to identify how the surveyed population as a whole compares to other research done in regards to this topic. As demonstrated in the literature review there is a great deal of research into how retiree health care insurance affects attitudes towards retirement. The erosion of health benefits for early retirement directly affects those in the 55-64 year age bracket which according to Christensen is part of the group that places long term care and retiree health as the most important employee benefit (Christensen, 2001, page 2). The importance of this benefit is shared by many at the CFD; with 93.6% of current employee respondents feeling that retiree health care for all firefighters is worth making concessions for (Appendix B). Even though this benefit was just recently lost by CFD new hires, research shows that as employees become within reach of retirement it becomes more and more important. This is demonstrated by the fact that “only 48% of workers age 60 or older chose that benefit (employee health care) as the most important. Workers age 60 or older were more likely than other age groups to prefer long-term care insurance and retiree health insurance” (Christensen, 2001, page 2).

How the loss of retiree health care insurance impacts the firefighting force may well impact the overall service delivery of the department. Through the previous research conducted over a number of years it has been determined that the lack of retiree health care insurance does impact the age at which employees choose to retire. This argument has been supported through numerous research projects (EBRI, 1997), (Károly, & Rogowski, 1998, page ¶ 13), (Frostin,

1999) and (French, Jones, 2007) which show that the availability of retiree health insurance directly affects the age at which a person decides to retire. This finding is demonstrated by EBRI and Gallup organization polls which show that 61% of workers in 1993 (EBRI, 1997, page 5) and 74% of workers in 1998 (Frostin, 1999, page 39) would not retire before becoming eligible for Medicare if their employers did not provide retiree health care insurance. This finding was supported with 84.5% of current firefighters, 86.4% of retired firefighters and 76.1% of recruits stating that the lack of retiree health care insurance would or would have had an impact on the age at which they retired with the majority (46% of current employees and 43% of recruits) prolonging their retirement by 10 or more years. This research shows that the populations surveyed meet and somewhat exceed previous research in their attitudes towards retiree health care insurance. This demonstrates that in the future this change in policy will likely cause an increase in the age of the CFD's firefighting force.

Current only 63 members (6% of firefighters) of the CFD have enough time in service to retire with 71% of those being in supervisory roles. This means that they each have 25 years of service and are not 50 or have chosen not to retire at this time. This places the percentage of firefighters over 50 well below the percentage of career firefighters over 50 (25%) given by the NFPA (NFPA, 2009, page 20). This means that the CFD has not realized the effect of older firefighters to this point. Currently the average age that firefighters retire at is 52 (Avard, personal communication, March 19, 2010). With 43% of those currently affected by the loss of benefits saying they may prolong retirement by 10 or more years the CFD will likely begin to feel the impact of older firefighters beyond the normal impact faced by career departments. This means that the future impact of age on firefighter injuries should be gauged against the overall firefighter injury data including volunteer departments and not just career departments. This is

due to the fact that there are a large percentage of older volunteer firefighters. However, it should be taken into account that even the older volunteer firefighters act in age appropriate roles. If a CFD firefighter is in a firefighter role and not a supervisory role they will be expected to operate in that manner no matter what their age.

With the likelihood of an aging firefighting force many issues must be evaluated. No other issue is as important as the issue of how this increase will affect firefighter fatalities and injuries. USFA has concluded that “although older firefighters possess a wealth of invaluable knowledge and experience, they are killed while on duty at a rate disproportionate to their representation in the fire service” (USFA, 2009, page 2). Where injuries are concerned it is stated that “firefighter injuries, in general, track the percentage of firefighters in each age group-the more firefighters there are in an age group, the more injuries there are” (NFPA, 2009, page 20).

The fire service in general has been experiencing a downward trend in firefighter injuries since 1981 (NFPA, 2009, page 7). During a portion of this timeframe (2000-2009) the CFD has been experiencing fluctuations but an upward trend in firefighter injuries (Chart 1, page 44). Whether this is due to an increase in call volume, the size of the workforce or organizational influences is not the purpose of this research. However, it can be stated that even without the impact of an aging workforce the injury rate for the CFD has been on an upward trend for the last 10 years. Between the years of 1981 and 2008 firefighters over the age of 50 made up for 18.6% of firefighters and 11.3% of firefighter injuries (USFA, 2008, page 12, fig 13). However, when it comes to hospitalization “relative to other employed adults in the same age group, the risk of hospitalization was significantly increased for firefighters aged 30 to 39 years and significantly lower for firefighters aged 50 to 64 years” (Lee et al, 2004, page 1). Lee et al goes on to state that “ the lower risk of hospitalization among older firefighters may reflect, in part, a

reduced occupational risk as these individuals move into more supervisory positions” (Lee et al, 2004, page 1). This implies that the CFD’s organizational experience with this topic could be due to the fact that 61% of those CFD firefighters eligible by years of service for retirement are in supervisory roles.

When it comes to overall firefighter age statistics, the CFD closely resembles those of the nation’s fire service. The NFPA reports that in 2008 46% of the nation’s firefighters were older than 40 years of age (NFPA, 2009). At this point in time 41% of the members of CFD fall into this same age bracket. With 43% of new hire possibly putting off retirement by up to 10 years or more this percentage can be expected to grow in the future.

These issues have effects through both monetary and operational impacts. No other issue has as great an impact as firefighter injury rates. Studies show that overexertion injuries cost an average of \$9,715 per injury (Walton et al, 2003,) and the average comprehensive cost for minor injuries is \$6,207 while the average comprehensive cost for moderate injuries is \$64,793 (TriData, 2004 , page 33, Table 14). This shows that whether minor or major injuries have a financial impact on an organization. The NFPA reported that in 2008 53% of fireground injuries were either sprains or strains (NFPA, 2009, page 12, table 2). Between 2007 and 2009 the CFD reports that 43% of firefighter injuries fall into this same category. Even if each of these injuries were minor it can be theorized that just in the strain, sprain and muscular pain category during this three year period the CFD would have paid out over \$1,000,000 in comprehensive costs.

While injuries can be the nature of the business the bottom line is always affected by every injury despite severity. This research has shown that the injury rate for the over 50 age bracket (11.2%) is almost twice as high as the percentage of employees in this age bracket (6%). This is

without taking into account the fact that 21% of those in this category are Chief Officers and only 39% are in non-supervisory roles. And that; the percentage of the restricted time (13%) is over twice the percentage of employees, further supporting the finding that “in the older cohorts, there was significant increase in both the percentage of firefighters reporting duty-related injury and in the percentage reporting the after-effects of their duty related injury” (Beaton et al, 2002, page 2).

This research implies that the loss of retiree health care insurance for those who are hired after July 1st, 2009 will have impacts on the firefighting force of the Charlotte Fire Department in the next 25 years. To begin with the average age that employees retire at will be prolonged by as many as 10 years or more placing the average age when employees retire at as possibly 62 years or older. This extension of retirement age will place a larger percentage of firefighters within an age group that dies in the line of duty at a disproportionately high rate. In addition, it will place this same group of firefighters in an age bracket that is injured more with longer recovery times needed. Unless this situation is addressed there will be both operational and monetary issues that will impact the effectiveness of the department in the future.

Recommendations

This research has demonstrated that the impact of the loss of health care insurance for retirees could be quite substantial if not addressed. It is understood that tax dollars are a finite resource that must be managed in a manner that is responsible and equitable. Without that the bond ratings of a governmental entity will be affected increasing the cost of borrowing money. In order to avoid a negative impact on the firefighting force of the CFD and a negative impact on the solvency of the city of Charlotte changes must be made. Based upon this research the

researcher recommends restoring the health care insurance benefit for retirees to all firefighters who currently do not have the benefit and all future firefighters. During the course of this research many different ways of dealing with the issue of retiree health care insurance were observed. Through these observations the researcher gives the following options for the restoration of this benefit:

1. Restore funding to the OPEB trust fund at a rate which supports the provision of this benefit to firefighters. While in an ideal situation it would be preferred to restore this benefit to all employees this research has demonstrated that there is a need to restore it to firefighters. This should be done in order to avoid exposing them to a statistical certainty that there will be a firefighter fatality and or increased injuries due to an increase in the number of firefighters in the over 50 age bracket.
2. Convert the retiree health care insurance plan from a defined benefit plan to a defined contribution plan. The cities level of contribution should be set at the current OPEB expenditure rate taking amortization out of the equation. In the future this rate of contribution should be adjusted to meet the current expenditure rate experienced at that time. This choice will provide employees with known resources to cover some if not all of their healthcare needs.
3. Offer healthcare savings plans to employees. In addition the 3% of the employee's salary currently contributed towards a 401K should be placed in this Healthcare Savings plan. This will allow the employee to contribute pre-tax dollars towards their future healthcare needs.
4. Create a health insurance plan which allows each employee to get retiree health insurance through the city at a group rate.

5. Create a health insurance plan which gives employees retiree health care insurance from the time they retire until they are 65 or eligible for Medicare.

While each of these solutions may not meet all of the needs within this issue due to the complexity of the issue they are each a start. The researcher believes that the research has shown a need to address the problem before it begins to manifest itself. By doing so the city can guarantee that the monetary resources are available in the future to ensure that the CFD remains a strong and effective organization.

The reality of this issue is that no effects will be felt for years and decades to come. Therefore, it is hard to place a sense of urgency to the issue. In the event that this discussion must continue for years to come it will become necessary that research continue on the issue and its impacts. In order to do this there is a need to track and analyze injury data from the CFD. To make this easier to accomplish a predetermined set of statistics should be collected and tracked on a year-to-year basis. This data should include age of injured, type of injury by age, severity by age, length of recovery by age and cost of injury by age. Attention should also be paid to the upward trend in firefighter injuries within the CFD. By tracking these statistics the organization will be better prepared to answer age related questions in the future.

Future readers who wish to replicate this research within their organization should keep in mind the frequency of firefighter injury studies. By timing the research correctly they can take advantage of the most up to date research. They should also keep in mind how their agency tracks injury data and leave enough time to fully compile and analyze the data. As this topic continues to be discussed the availability of future research should make future research more achievable.

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Appendix A

Retiree Health Care Practices

- **August 1, 1971-** The City extended group medical insurance coverage to retirees under age 65 at their own expense. Coverage ceased under the group plan when the retiree reached age 65.
- **January 1, 1977** – The City implemented a Medicare Supplement Plan whereby employees retiring at age 65 or currently retired employees upon attainment of age 65 could continue coverage beyond age 65 at their own expense.
- **March 1, 1981** – The City’s Medicare supplement was replaced by a Medicare Carve-Out Plan. Retired employees continued to pay the premium at their own expense.
- **July 2, 1982** – The City began subsidizing the cost of retiree medical insurance by paying the cost of the retiree coverage and a portion of the dependent coverage.
- **January 1, 1991** – Implemented eligibility criteria for retiree insurance based on years of service. This change was made due to increasing costs of retiree insurance, public and private competitive practices, and taking into consideration hiring employees at mid career. Previously employees had to retire with a monthly benefit from their retirement system to be eligible for retiree health insurance.
- **September 1, 1993-** Implemented managed care plans for both active employees and retirees.
- **1993-1998-** No premium changes necessary in active or retiree insurance.
- **April 9, 1997** – Restructuring Government Committee approved recommendations to thoroughly evaluate impact of GASB accounting standards once final rules adopted and continue to fund retiree health care on a “pay as you go” basis until evaluation of GASB guidelines.
- **November 14, 2000** – Restructuring Government Committee unanimously approved the following recommendations regarding retiree health insurance and reported this action to City Council.
 - (1) The City maintain the position taken by the Council Restructuring Government Committee in 1997 and follow the advice of the Mayor’s Employee Compensation Committee (2000) and Towers Perrin by considering future changes upon issuance of final GASB standards and
 - (2)The City evaluate long-term strategies for health care delivery and cost management for both employees and retirees.

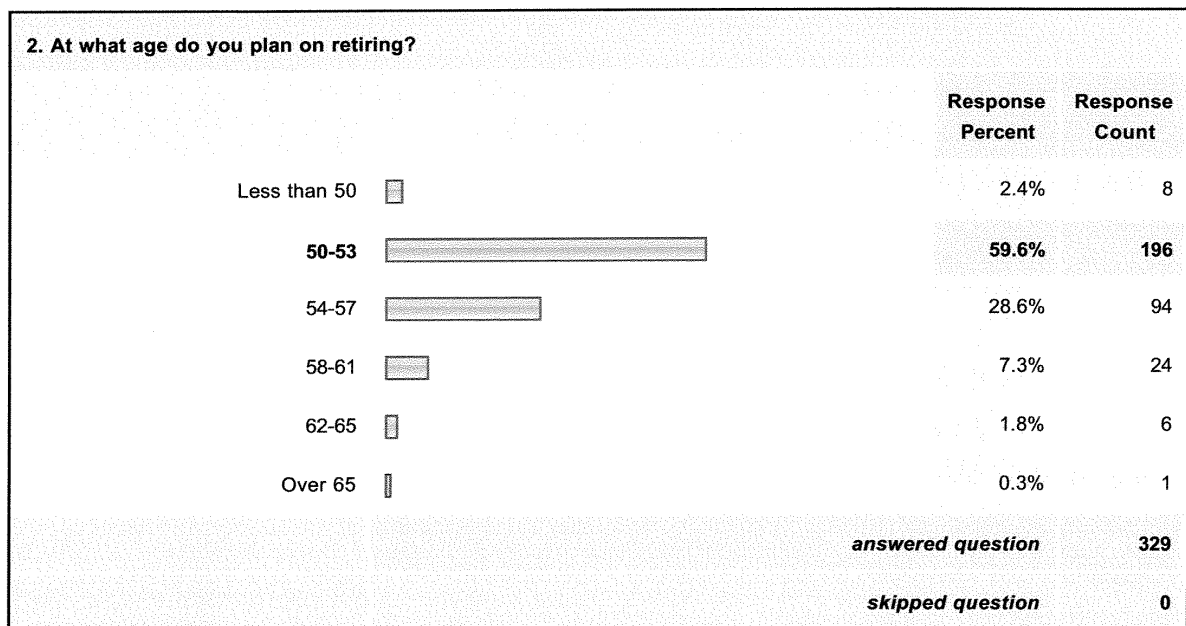
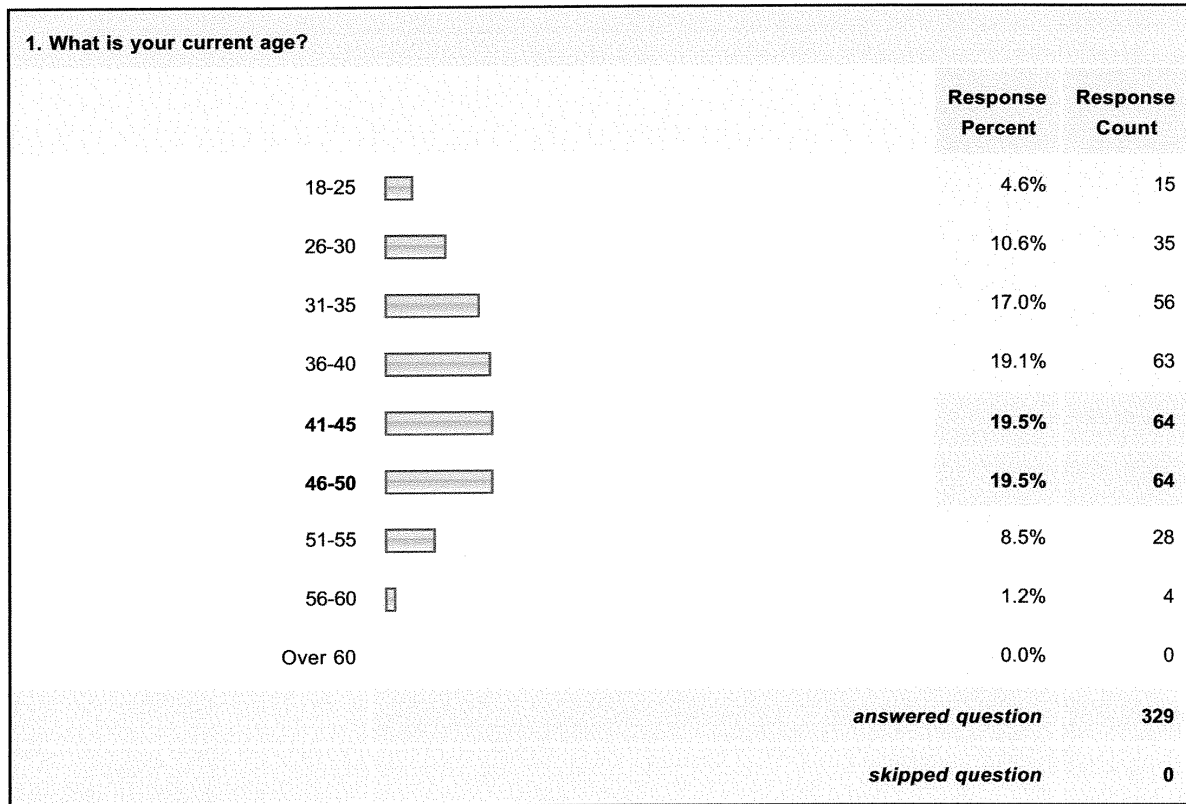
- **July 1, 2001** – Transferred age 65 and older retirees to indemnity coverage because Medicare is primary. This resulted in savings to the City due to reduced administrative fees.
- **July 1, 2001**- Began offering surviving spouses continued coverage until age 65, upon the death of a covered retiree. Surviving spouses pay the full cost of coverage.
- **January 1, 2002** – Employees hired on or after this date and who subsequently retire will be required to pay full cost of dependent's coverage upon their retirement.
- **January 1, 2003** – Increase retirees' share from 31 to 35% of the total premium for retirees with 20 more years of service who cover themselves and dependents.
- **July 1, 2003**- Allow currently covered retirees and future eligible retirees the opportunity to opt-out of medical coverage and upon request, reenroll for coverage at a later date. Retirees could reenroll in accordance with the change in family status provisions or during Open Enrollment.
- **January 1, 2004** – Increased retirees' share from 35% to 37% of total premium for retirees with 20 or more years of service who cover themselves and dependents.
- **January 1, 2005**- Increase retirees' share from 10% to 15% of the total premium for retiree only coverage. Increase retirees' share from 37% to 40% of the total premium if they cover themselves and dependents.
- **January 1, 2005**- Adopted mandatory mail order for maintenance drugs for retirees.
- **January 1, 2007**- Increase retirees' share from 15% to 20% of the total premium for retiree only coverage. Increase retirees' share from 40% to 43% of the total premium if they cover themselves and dependents.
- **January 1, 2008**- Increase retirees' share from 20% to 25% of the total premium for retiree only coverage. Increase retirees' share from 43% to 44% of the total premium if they cover themselves and dependents.
- **January 1, 2009**- Increase retirees' share from 25% to 30% of the total premium for retiree only coverage. Increase retirees' share from 44% to 45% of the total premium if they cover themselves and dependents.
- **July 1, 2009**- Do not offer retiree health insurance coverage to employees hired on or after July 1, 2009.

- **January 1, 2010-** Increase retirees' share from 30% to 32.5% of the total premium for retiree only coverage. Increase retirees' share from 44% to 45% of the total premium if they cover themselves and dependents.

- **January 1, 2010-** Changed retiree medical coverage for Medicare-eligible retirees to a fully insured plan. Medical coverage is provided through a group Medicare supplement with UnitedHealthcare and prescription drug coverage is provided through a Medicare Part D plan with SilverScript.

Appendix B



Retiree Healthcare Benefits Survey








3. Please rate in order of importance (with 1 being the most important and 5 being the least important) which subject you feel will most impact your decision to retire. You must rank these in order of importance.

	1	2	3	4	5	N/A	Rating Average	Response Count
Age	10.0% (31)	6.8% (21)	13.6% (42)	15.9% (49)	53.1% (164)	1.0% (3)	3.97	309
Physical ability	27.2% (84)	18.1% (56)	24.3% (75)	23.0% (71)	6.8% (21)	0.6% (2)	2.64	309
Level of Compensation (Pay Rate)	25.3% (75)	21.5% (64)	17.8% (53)	22.6% (67)	12.5% (37)	0.3% (1)	2.75	297
Availability of health insurance	20.1% (61)	29.4% (89)	26.4% (80)	17.5% (53)	6.6% (20)	0.0% (0)	2.61	303
Quality of life (impact of medical issues)	20.3% (63)	25.7% (80)	18.3% (57)	19.9% (62)	15.1% (47)	0.6% (2)	2.84	311
Other (please specify)								11
answered question								329
skipped question								0



4. Would the lack of retiree health insurance impact the age that you retire at?

		Response Percent	Response Count
Yes		84.5%	278
No		15.5%	51
answered question			329
skipped question			0



5. How would this impact your decision to retire?

		Response Percent	Response Count
Prolong retirement by 2 years		13.1%	43
Prolong retirement by 5 years		40.7%	134
Prolong retirement by 10 years		10.9%	36
Prolong retirement indefinitely		18.2%	60
Would not affect decision to retire		17.0%	56
		answered question	329
		skipped question	0



6. If you did not have retiree health insurance would you work beyond the age that you feel you could effectively perform the duties of a firefighter?

		Response Percent	Response Count
Yes		70.8%	233
No		29.2%	96
		answered question	329
		skipped question	0



7. Would you continue your employment with the Charlotte Fire Department solely in order to maintain health insurance?

		Response Percent	Response Count
Yes		69.3%	228
No		30.7%	101
		answered question	329
		skipped question	0



8. Would you hide medical conditions or physical conditions that would affect your ability to perform the duties of a firefighter in order to maintain employment as well as health care insurance?

	Response Percent	Response Count
Yes 	52.0%	171
No 	48.0%	158
<i>answered question</i>		329
<i>skipped question</i>		0

9. Would the lack of health care insurance for retirement, through either years of service or disability, effect the decisions you make or how you perform you job as a firefighter.

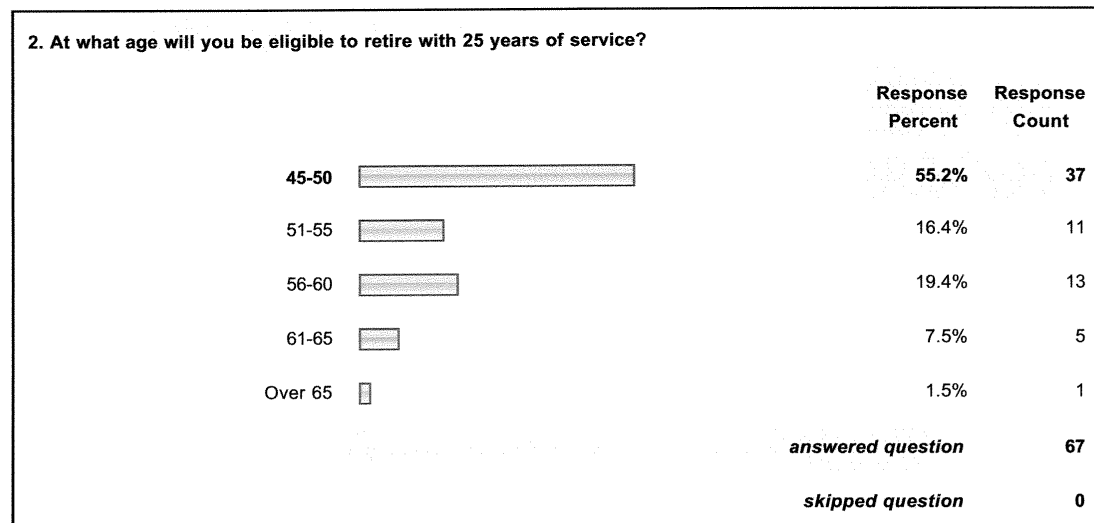
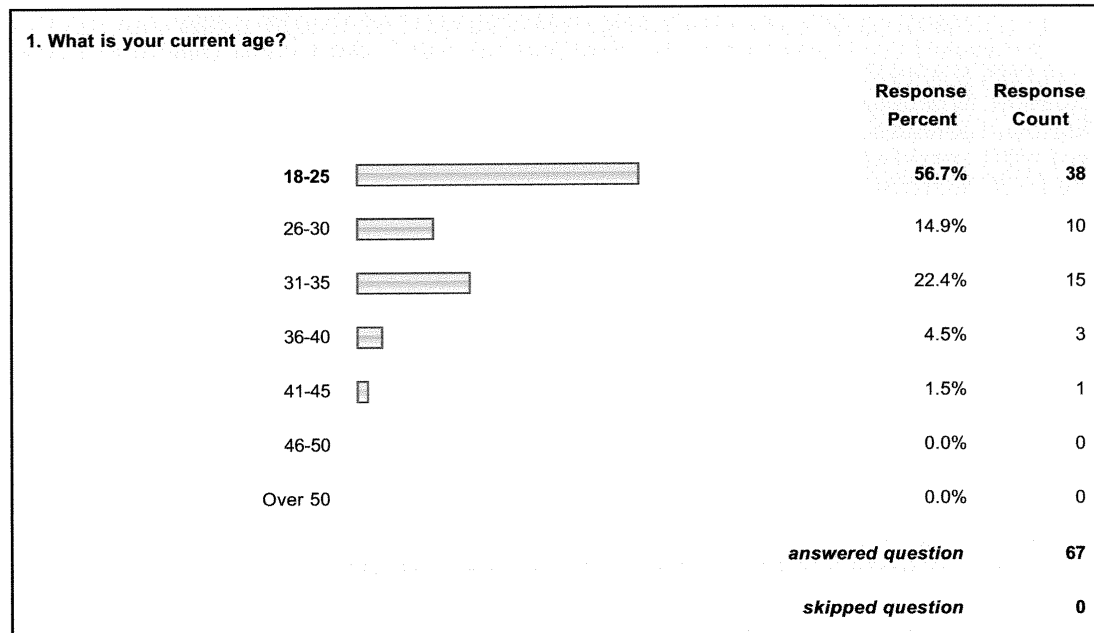
	Response Percent	Response Count
Yes 	43.3%	142
No 	56.7%	186
<i>answered question</i>		328
<i>skipped question</i>		1

10. Do you feel that guaranteeing retiree health care insurance for all firefighters is worth making other concessions for?

	Response Percent	Response Count
Yes 	93.6%	308
No 	6.4%	21
<i>answered question</i>		329
<i>skipped question</i>		0

Appendix C

Retiree Health Care Benefits Survey (Recruits)





3. At what age do you plan on retiring?

	Response Percent	Response Count
Less than 50	1.5%	1
50-53	43.3%	29
54-57	28.4%	19
58-61	10.4%	7
62-65	13.4%	9
Over 65	3.0%	2
answered question		67
skipped question		0






4. Please rate in order of importance (with 1 being the most important and 5 being the least important) which subject you feel will most impact your decision to retire. You must rank these in order of importance

	1	2	3	4	5	N/A	Rating Average	Response Count
Age	13.4% (9)	16.4% (11)	29.9% (20)	10.4% (7)	28.4% (19)	1.5% (1)	3.24	67
Availability of health care insurance	38.8% (26)	17.9% (12)	22.4% (15)	13.4% (9)	7.5% (5)	0.0% (0)	2.33	67
Level of Compensation (Pay rate)	40.3% (27)	26.9% (18)	11.9% (8)	10.4% (7)	10.4% (7)	0.0% (0)	2.24	67
Physical ability	40.3% (27)	28.4% (19)	17.9% (12)	9.0% (6)	4.5% (3)	0.0% (0)	2.09	67
Quality of life (impact of medical issues)	41.8% (28)	22.4% (15)	17.9% (12)	13.4% (9)	4.5% (3)	0.0% (0)	2.16	67
Other (please specify)								2
answered question								67
skipped question								0



5. Do you feel at this time that the lack of retiree health care insurance will impact your decision to retire?

		Response Percent	Response Count
Yes		76.1%	51
No		23.9%	16
answered question			67
skipped question			0



6. How would this impact your decision to retire?

		Response Percent	Response Count
Prolong retirement by 2 years		14.9%	10
Prolong retirement by 5 years		41.8%	28
Prolong retirement by 10 years		9.0%	6
Prolong retirement indefinitely		16.4%	11
Would not effect decision to retire		17.9%	12
answered question			67
skipped question			0



7. If you did not have retiree health care insurance would you work beyond the age that you feel you could effectively perform the duties of a firefighter?

		Response Percent	Response Count
Yes		58.2%	39
No		41.8%	28
answered question			67
skipped question			0



8. Would you continue your employment with the Charlotte Fire Department solely in order to maintain health care insurance?

		Response Percent	Response Count
Yes		67.2%	45
No		32.8%	22
answered question			67
skipped question			0

9. Would you hide medical conditions or physical conditions that would effect your ability to perform the duties of a firefighter in order to maintain employment as well as health care insurance?

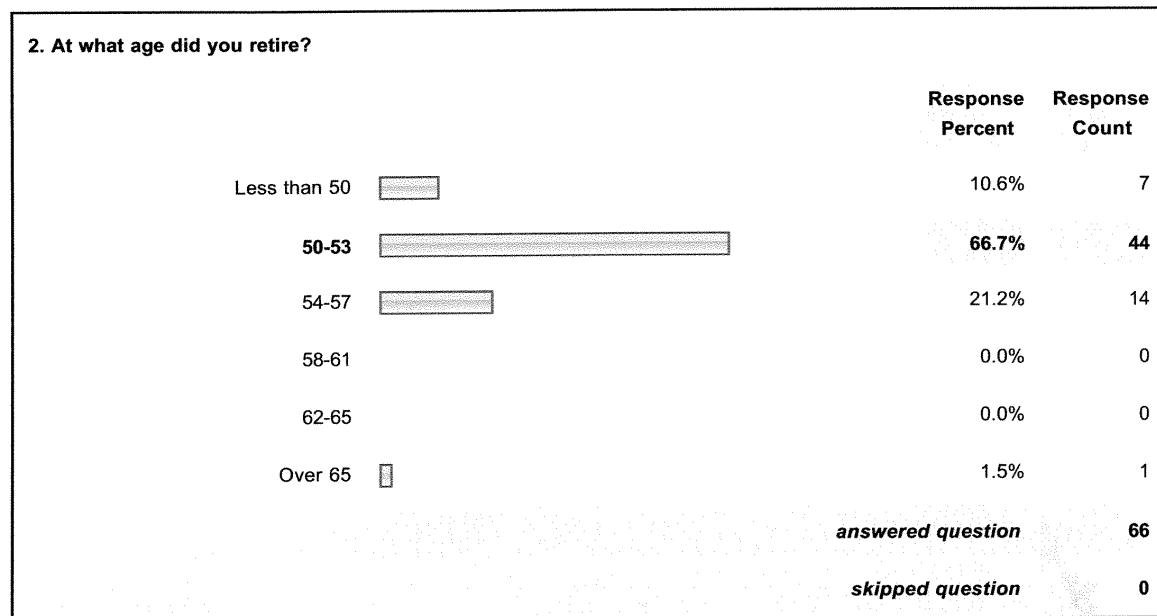
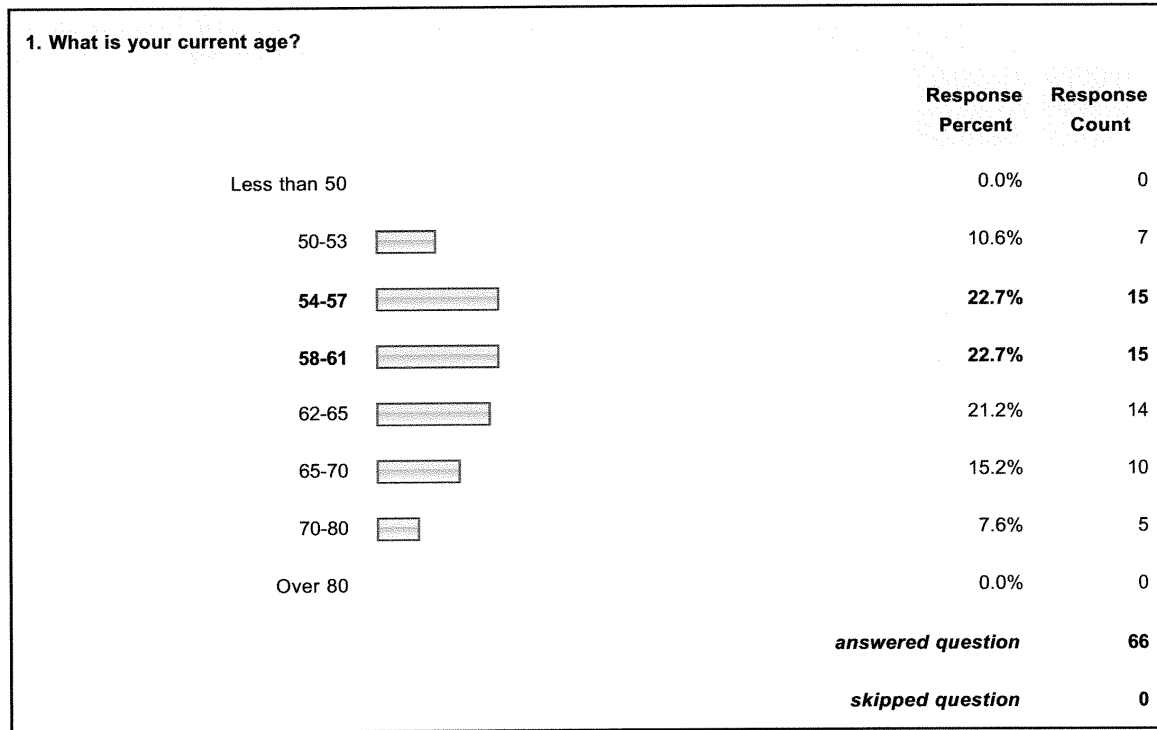
		Response Percent	Response Count
Yes		35.8%	24
No		64.2%	43
answered question			67
skipped question			0

10. Would the lack of retiree health care insurance influence any future decisions you may make to leave the Charlotte Fire Department for employment elsewhere?



		Response Percent	Response Count
Yes		31.3%	21
No		68.7%	46
Other (please specify)			0
answered question			67
skipped question			0

Appendix D







Retiree Health Care Benefits (Retiree's)



3. If you had not had retiree health care insurance would you have retired at this age?

		Response Percent	Response Count
Yes		13.6%	9
No		86.4%	57
answered question			66
skipped question			0

4. At what age do you feel you were not physically capable of performing the duties of a firefighter effectively enough to remain on the job?

		Response Percent	Response Count
a. Less than 50		4.5%	3
50-53		31.8%	21
54-57		30.3%	20
58-61		19.7%	13
62-65		10.6%	7
Over 65		3.0%	2
answered question			66
skipped question			0

5. What type of health issues did you or are you experiencing between 50-65 years of age? (Check ALL THAT APPLY)

	Response Percent	Response Count
Minor non-back related orthopedic (reoccurring nuisance issues)	56.5%	35
Major non-back related orthopedic (issues effecting your quality of life)	17.7%	11
Back injuries	32.3%	20
Major non-cardiac related medical issues (issues effecting your quality of life)	21.0%	13
Cardiac related issues	22.6%	14
	answered question	62
	skipped question	4

6. At what age did you experience these issues?

	Response Percent	Response Count
Less than 50	33.9%	21
50-53	29.0%	18
54-57	14.5%	9
58-61	16.1%	10
62-65	3.2%	2
Over 65	3.2%	2
	answered question	62
	skipped question	4

7. What issues, other than those mentioned above, did you experience between 50-65 years of age that you feel would have negatively impacted your ability to effectively perform the duties of a firefighter? At what age did you experience these issues?

**Response
Count**

35

answered question

35

skipped question

31

Appendix E

Charlotte Firefighter Injuries by Age and Type of Injury: Past 3 Calendar Years

	Percentage of Firefighter Population											TOTALS
	AGE	18-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	60+		
	6%	15%	19%	19%	17%	13%	8%	3%	0.20%			
Burns	1	2	5	3	1	0	0	0	0	0	0	12
Smoke/Gas Inhalation	0	0	0	0	0	0	0	0	0	0	0	0
Other Respiratory Distress	0	0	0	0	0	2	0	0	0	0	0	2
Burn & Smoke Inhalation	0	0	1	0	0	0	0	0	0	0	0	1
Wound, Cut, Bleeding, Bruise	8	17	19	13	15	8	4	1	0	0	0	85
Dislocation/Fracture	1	1	2	3	2	3	1	0	0	0	0	13
Heart Attack or Stroke	1	1	3	2	2	0	2	0	0	0	0	11
Strain, Sprain, Muscular Pain	24	21	33	29	27	26	9	1	1	1	1	171
Thermal Stress	1	2	5	3	5	1	1	1	1	0	0	19
Hazmat Exposure	0	2	3	0	0	1	0	0	0	0	0	6
Communicable Exposure	2	5	5	13	4	6	3	1	1	0	0	39
Other	4	7	10	8	4	6	1	1	1	0	0	41
TOTALS	42	58	86	74	60	53	21	5	1	1	1	400

Percentage of Firefighter Injuries 10% 15% 21% 19% 15% 13% 5% 2% 0.20%

% of Injuries That Were Lost Time	7%
% of Injuries That Were Restricted Time	20%
Number of Days Away From Work	491
Number of Days Restricted Work	2785