A Comprehensive Approach to Workplace Stress & Trauma in Fire-Fighting: A Review Document Prepared for The International Association of Firefighters 17th Redmond Symposium

October 5-9, 2003, San Francisco, CA

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Firefighters are exposed to a wide range of workplace stresses resulting in a wide range of negative physical, psychological, interpersonal and organizational consequences. This paper presents a comprehensive approach to workplace stress in fire-fighting. The Complex Stress Model encompasses the full set of workplace systemic and traumatic stresses encountered by firefighters. The risk/resilience factors, effects and outcomes of systemic and traumatic stress are reviewed, followed by a discussion of the challenges these pose to fire-fighting organizations. Within this framework, effective workplace wellness and organizational health initiatives need to incorporate three strategic elements: building capacity, increasing resiliency, and supporting positive culture change.

The history of fire-fighting as a specialized and vital occupation reaches far back throughout human history, with early Roman accounts of large well-equipped fire services in the third century B.C.[1]. As long as people have lived in stable groups, built structures, and made use of natural resources in an organized fashion – they have needed to control and manage fire. Thus society depends on fire services in urban, rural, industrial, military, forest and brush land setting. Both career professionals and volunteers staff fire services, and many firefighters are also trained as emergency medical technicians (EMTs) or as paramedics. Thus, firefighters are called upon to respond to a wide array of emergency situations including residential, commercial, and industrial fires, medical crises, hazardous material spills, explosions and large-scale community disasters.

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By its very nature, fire-fighting carries a high risk for occupational injury and stress, and the immediate physical and psychological consequences of critical incidents have been well recognized. Thus, organizational responses to workplace stress have traditionally focused on physical health and fitness initiatives, and the application of critical incident stress debriefing (CISD) protocols. While these are generally helpful interventions, a groundswell of concern is beginning to surface about the limitations of this approach[2,3]. Due in part to the consequences of September 11 on firefighters and emergency services personnel, attention is now being directed toward the long-term physical, psychological, interpersonal and organizational consequences of workplace stress and trauma in fire-fighting and emergency services.

This paper presents a model of the full set of pressures coming to bear on firefighters and members of other high-risk professions such as law enforcement, corrections, and paramedics. Developed by the principal author, the Complex Stress Model[4] provides a comprehensive approach to the occupational stresses encountered in fire-fighting – incorporating both systemic and traumatic workplace stresses, as well as the psychosocial challenges specific to the work. The

following briefly reviews components of these stresses, their outcomes and effects, and the organizational challenges these pose to fire-fighting organizations.

Traumatic Workplace Stresses

Firefighters face a serious risk for work-related injury[5], and US firefighters are three times more likely that all other workers to die in the line of duty[6]. In addition to direct fire-related injuries, common risks include: structural collapse; motor vehicle accidents; engine rollovers; equipment failure; and exposure to contaminants from the products of combustion as well as fire retardants and suppressants[7]. Medical emergency and disaster responders may encounter: exposure to air-borne, or blood-borne diseases; threats of patient violence; exposure to toxic, flammable, or explosive substances or vapors; and other threats to personal safety.

Firefighters are also at chronic risk for secondary, or vicarious trauma. Also known as compassion fatigue[8], this refers to the acute and cumulative distress normal people experience when witnessing or hearing about dreadful things that have happened to others. Sources of secondary trauma include dealing with victims of fire, accident and disaster; witnessing injury and death; experiencing injury to, or death of, fellow firefighters, etc. [9,10]. It is important to recognize that civilian personnel working in firefighting (i.e., dispatchers, administrative and support staff,) are also exposed to some of these traumatic stressors, and are also often at risk for secondary traumatic stress.

Systemic Workplace Stresses

The culture of firefighting is defined by a paramilitary, hierarchical power and command structure with a strong tool and task orientation. This organizational profile tends to increase generic work strain[11] and stigmatize individuals who suffer from stress effects. Common systemic stressors include: overtime, excessive workload, rotating shift-work, resource scarcity, perceived lack of control, role ambiguity and role conflict, departmental politics, harassment, and severe work-life conflict[12,13,14,15,16]. In addition, many fire fighting departments have encountered additional pressures arising from restructuring, chronic understaffing, increased reliance on sophisticated technologies, demographic changes in both staff and community, increased needs for specialized skills and expertise, increased media scrutiny, and other contextual challenges[17]. Clearly, many of these stress factors apply to both firefighters and support staff.

Specific Psychosocial Challenges

Apart from the specific traumatic and systemic stresses, firefighters also face a unique set of pervasive stresses. Specifically, by any objective measure, the work is highly stressful[18]. Exposure to the realities of extreme danger, loss of life, the impact on victims, system failures, etc., challenges individual's previous belief systems about self and world. It is also the case that the wider population does not share much of the knowledge associated with fire fighting – the professional experience is shared only with colleagues. Finally, the public does not always value the work of firefighters, and individuals may experience social stigma and negative judgments. At a psychological level, these challenges represent: stress, identity challenge, isolation, alienation, and stigmatization. Collectively, these form highly potent psychological challenges[19].

Effects And Consequences Of Workplace Stress & Trauma

This complex constellation of risk factors places fire fighters at greatly increased risk for a wide range of negative physiological, mental health, behavioral and interpersonal symptoms and effects[20]. In addition to direct risk for occupational injury, the physiological consequences of long term exposure to acute and chronic stresses include increased risk for cardiovascular disease, weakened immune system, frequent infectious illness, neuroendocrine problems, musculoskeletal difficulties, a wide range of somatic complaints, fatigue, physical depletion and exhaustion[21,22,23,24,25,26,27,28,29]. In terms of adverse mental health outcomes, posttraumatic stress disorder (PTSD) is probably the best known serious mental health consequence, and recent studies conclude that rates are at epidemic levels among professional firefighters[30] – in excess of those found in Viet Nam combat veterans. Firefighters, EMT personnel and others subjected to similar stress profiles experience increased rates of clinical depression, suicide, anxiety disorders, post-traumatic stress disorder, substance abuse and addictions, and diminished self-esteem[31,32,33, 34,35]. Behavioral and interpersonal effects include social

isolation and withdrawal, relationship problems and increased rates of family dysfunction and breakdown[36,37,38,39].

At the organizational level, these effects translate to increased rates of absenteeism, sick leaves, long-term disability, early retirement or attrition, labor-management friction, and difficulties attracting and retaining personnel[40,41,42,43]. The consequences to the work environment have also been demonstrated to include diminished morale, poor job satisfaction, poor work performance, public relations problems, and other negative outcomes[44].

In summary, firefighters function within an environment characterized by high levels of acute and chronic complex stresses – with individuals frequently carrying out their duties while struggling with a myriad of stress related symptoms and effects.

Workplace Risk and Resilience Factors

Given the high risk for negative occupational stress outcomes in fire-fighting, it is important to briefly consider the substantial body of research that has determined an array of workplace factors which act to either enhance resilience or increase risk for negative outcomes under circumstances of high occupation systemic and traumatic stress[45,46.] In terms of systemic workplace stress, critical risk/resilience factors include: social support[47,48], role demands[49] and clarity[50,51], recognition from others of the value of the work[52,53], personal belief that the work is valuable[54,55], the fit between personal and organizational values[56], workplace harassment or discrimination[57,58,59,60], work-family conflict[61,62], workload[63], and adequate material resources [64,65]. Risk/resilience factors associated with traumatic workplace stress include: the frequency, intensity and duration of exposure to traumatic incidents and material[66,67,68,69], levels of training and preparation[70], strong team relationships[71], quality of supervision and access to expert consultation[72,73,74], the social and cultural context[75,76], the individual's cognitive appraisal of the situation[77,78,79], and access to short- and long-term support resources[80]. Participation in exercise training and fitness has also been demonstrated to increase resiliency to both systemic and traumatic stress in firefighters[81,82]. While many other individual factors are also important predictors[83,84], these particular risk/resilience moderators are largely determined by workplace policies, procedures, culture and attitudes.

Contemporary Challenges in Fire-Fighting

Quite apart from all the structural, resource and social-political issues confronting fire-fighting, the issue of succession planning presents critical concerns. Driven by demographics, much of the western industrialized world will experience a massive shift in personnel as the population bulge of baby-boomers retire and need to be replaced. The boomers have occupied the largest segment of the workforce and their retirement will create an unprecedented need for replacement workers. This problem is only compounded by the upcoming population scarcity of skilled personnel. While succession planning is a critical issue for all sectors, it is even more pressing in fire fighting – as the average age of retirement is lower than other occupations[85]. Consequently, fire-fighting organizations in North America can anticipate potential labour shortages in the immediate future – both at the management and front line levels. Under these circumstances it is important to focus on recruiting and retaining quality personnel. This task is made even more difficult in that fire-fighting will be competing with all the other occupational sectors for scarce human resources. Thus, fire-fighting organizations need to be seen as "employers of choice".

Addressing Workplace Stress in Fire-Fighting

As is evident from the preceding discussion, the issue of workplace stresses in fire-fighting is highly complex, layered and specific to given organizations, operational units and individuals. Consequently, effective responses need to take a strategic and comprehensive approach. The overarching goal of a workplace wellness and organizational health initiative needs to incorporate three elements: building capacity, increasing resiliency, and supporting positive culture change.

The first stage of capacity building involves providing an effective, sustainable and comprehensive workplace wellness program for all staff and managers. This acts to establish a common understanding of the issues and supports individuals in defining the areas of strength and concern - and then taking effective steps to maintain

personal wellness. Management style and strategies play a very important role in many of the risk/resilience factors previously noted. Thus, capacity building also requires manager training regarding the constructs surrounding systemic and traumatic stress and the role of management in either promoting resilience or increasing distress.

Individual and group resiliency increases as staff and managers gain awareness of the issues and their roles, and as they make adaptive shifts in their attitudes and behaviours. As people deal successfully with the most pressing issues, they often become aware of less obvious areas of concern. With increased capacity for adaptive change, these second and third order issues are more likely to then be addressed. In general, once the wellness wheel starts turning, it often generates momentum as people become increasingly confident and knowledgeable.

At the most fundamental level, we are concerned with culture change. With supporting a fire-fighting culture that values its human resources, and possesses the skills and knowledge to cope innovatively with the wide range of presenting challenges.

Summary

Given our current understanding of the particular workplace stresses and challenges facing fire-fighters, and our knowledge about the mechanisms, effects and risk/resilience factors, it is critical that fire-fighting organizations effectively address these issues. In addition to the specific internal strategies noted in the previous section, the fire-fighting community needs to consider the wider social context of this work. Elements such as funding levels, pension benefits, public support and respect, and media relationships all play a role in the stress levels experienced by fire fighters.

In summary, most people would agree that a well-staffed, healthy and capable fire-fighting community is a vital component of a safe and healthy society. It is imperative that a career in fire-fighting be accurately seen as a fulfilling and desirable occupational choice.

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Dr. Patricia Fisher, R.Psych., is a clinical and consulting psychologist, who has specialized in the field of workplace traumatic and systemic stress. She developed the Complex Stress Model incorporating workplace systemic and traumatic stress based on her extensive clinical experience, research, program design and evaluation activities. She is also active in the areas of policy development and planning, professional development, and training. Dr. Fisher's work has focused on the needs of public service personnel in high-risk areas such as emergency services, law enforcement, corrections, health care, and human services. She is the Executive Director of Fisher & Associates, an organization exclusively focused on the critical issue of workplace stress and trauma - and devoted to meeting the needs of front line staff and managers in high-risk occupations. The organization provides a comprehensive set of programs, training, consultation services and support resources to organizations dealing with the issue of workplace stress, burnout and trauma as it affects staff and managers.

Bruce Etches, M.A., R.Psych., is the Director of the Emergency Services Division of Fisher & Associates. With over 25 years experience as a psychologist in mental health, forensic, teaching and private practice settings, Bruce has worked both as a direct service provider and program director. He has also served as a consultant to the Ministry of Health in South Australia and as Clinical Instructor to the University of British Columbia's Department of Psychiatry. Bruce has extensive experience in helping individuals and organizations deal with workplace stress and the aftermath of both primary and secondary traumatization. In this area he has been able to draw on his many years as a therapist, educator, consultant and workshop facilitator. Through his work as an employee assistance provider, Bruce also has a good understanding of organizational issues and their impact on employees and managers.

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Traumatic Workplace Stresses

Firefighters face a serious risk for work-related injury[5], and US firefighters are three times more likely that all other workers to die in the line of duty[6]. In addition to direct fire-related injuries, common risks include: structural collapse; motor vehicle accidents; engine rollovers; equipment failure; and exposure to contaminants from the products of combustion as well as fire retardants and suppressants[7]. Medical emergency and disaster responders may encounter: exposure to air-borne, or blood-borne diseases; threats of patient violence; exposure to toxic, flammable, or explosive substances or vapors; and other threats to personal safety.

Firefighters are also at chronic risk for secondary, or vicarious trauma. Also known as compassion fatigue[8], this refers to the acute and cumulative distress normal people experience when witnessing or hearing about dreadful things that have happened to others. Sources of secondary trauma include dealing with victims of fire, accident and disaster; witnessing injury and death; experiencing injury to, or death of, fellow firefighters, etc. [9,10]. It is important to recognize that civilian personnel working in firefighting (i.e., dispatchers, administrative and support staff,) are also exposed to some of these traumatic stressors, and are also often at risk for secondary traumatic stress.

Systemic Workplace Stresses

The culture of firefighting is defined by a paramilitary, hierarchical power and command structure with a strong tool and task orientation. This organizational profile tends to increase generic work strain[11] and stigmatize individuals who suffer from stress effects. Common systemic stressors include: overtime, excessive workload, rotating shift-work, resource scarcity, perceived lack of control, role ambiguity and role conflict, departmental politics, harassment, and severe work-life conflict[12,13,14,15,16]. In addition, many fire fighting departments have encountered additional pressures arising from restructuring, chronic understaffing, increased reliance on sophisticated technologies, demographic changes in both staff and community, increased needs for specialized skills and expertise, increased media scrutiny, and other contextual challenges[17]. Clearly, many of these stress factors apply to both firefighters and support staff.

Specific Psychosocial Challenges

Apart from the specific traumatic and systemic stresses, firefighters also face a unique set of pervasive stresses. Specifically, by any objective measure, the work is highly stressful[18]. Exposure to the realities of extreme danger, loss of life, the impact on victims, system failures, etc., challenges individual's previous belief systems about self and world. It is also the case that the wider population does not share much of the knowledge associated with fire fighting – the professional experience is shared only with colleagues. Finally, the public does not always value the work of firefighters, and individuals may experience social stigma and negative judgments. At a psychological level, these challenges represent: stress, identity challenge, isolation, alienation, and stigmatization. Collectively, these form highly potent psychological challenges[19].

Effects And Consequences Of Workplace Stress & Trauma

This complex constellation of risk factors places fire fighters at greatly increased risk for a wide range of negative physiological, mental health, behavioral and interpersonal symptoms and effects[20]. In addition to direct risk for occupational injury, the physiological consequences of long term exposure to acute and chronic stresses include increased risk for cardiovascular disease, weakened immune system, frequent infectious illness, neuroendocrine problems, musculoskeletal difficulties, a wide range of somatic complaints, fatigue, physical depletion and exhaustion[21,22,23,24,25,26,27,28,29]. In terms of adverse mental health outcomes, posttraumatic stress disorder (PTSD) is probably the best known serious mental health consequence, and recent studies conclude that rates are at epidemic levels among professional firefighters[30] – in excess of those found in Viet Nam combat veterans. Firefighters, EMT personnel and others subjected to similar stress profiles experience increased rates of clinical depression, suicide, anxiety disorders, post-traumatic stress disorder, substance abuse and addictions, and diminished self-esteem[31,32,33, 34,35]. Behavioral and interpersonal effects include social

isolation and withdrawal, relationship problems and increased rates of family dysfunction and breakdown[36,37,38,39].

At the organizational level, these effects translate to increased rates of absenteeism, sick leaves, long-term disability, early retirement or attrition, labor-management friction, and difficulties attracting and retaining personnel[40,41,42,43]. The consequences to the work environment have also been demonstrated to include diminished morale, poor job satisfaction, poor work performance, public relations problems, and other negative outcomes[44].

In summary, firefighters function within an environment characterized by high levels of acute and chronic complex stresses – with individuals frequently carrying out their duties while struggling with a myriad of stress related symptoms and effects.

Workplace Risk and Resilience Factors

Given the high risk for negative occupational stress outcomes in fire-fighting, it is important to briefly consider the substantial body of research that has determined an array of workplace factors which act to either enhance resilience or increase risk for negative outcomes under circumstances of high occupation systemic and traumatic stress[45,46.] In terms of systemic workplace stress, critical risk/resilience factors include: social support[47,48], role demands[49] and clarity[50,51], recognition from others of the value of the work[52,53], personal belief that the work is valuable[54,55], the fit between personal and organizational values[56], workplace harassment or discrimination[57,58,59,60], work-family conflict[61,62], workload[63], and adequate material resources [64,65]. Risk/resilience factors associated with traumatic workplace stress include: the frequency, intensity and duration of exposure to traumatic incidents and material[66,67,68,69], levels of training and preparation[70], strong team relationships[71], quality of supervision and access to expert consultation[72,73,74], the social and cultural context[75,76], the individual's cognitive appraisal of the situation[77,78,79], and access to short- and long-term support resources[80]. Participation in exercise training and fitness has also been demonstrated to increase resiliency to both systemic and traumatic stress in firefighters[81,82]. While many other individual factors are also important predictors[83,84], these particular risk/resilience moderators are largely determined by workplace policies, procedures, culture and attitudes.

Contemporary Challenges in Fire-Fighting

Quite apart from all the structural, resource and social-political issues confronting fire-fighting, the issue of succession planning presents critical concerns. Driven by demographics, much of the western industrialized world will experience a massive shift in personnel as the population bulge of baby-boomers retire and need to be replaced. The boomers have occupied the largest segment of the workforce and their retirement will create an unprecedented need for replacement workers. This problem is only compounded by the upcoming population scarcity of skilled personnel. While succession planning is a critical issue for all sectors, it is even more pressing in fire fighting – as the average age of retirement is lower than other occupations[85]. Consequently, fire-fighting organizations in North America can anticipate potential labour shortages in the immediate future – both at the management and front line levels. Under these circumstances it is important to focus on recruiting and retaining quality personnel. This task is made even more difficult in that fire-fighting will be competing with all the other occupational sectors for scarce human resources. Thus, fire-fighting organizations need to be seen as "employers of choice".

Addressing Workplace Stress in Fire-Fighting

As is evident from the preceding discussion, the issue of workplace stresses in fire-fighting is highly complex, layered and specific to given organizations, operational units and individuals. Consequently, effective responses need to take a strategic and comprehensive approach. The overarching goal of a workplace wellness and organizational health initiative needs to incorporate three elements: building capacity, increasing resiliency, and supporting positive culture change.

The first stage of capacity building involves providing an effective, sustainable and comprehensive workplace wellness program for all staff and managers. This acts to establish a common understanding of the issues and supports individuals in defining the areas of strength and concern - and then taking effective steps to maintain

personal wellness. Management style and strategies play a very important role in many of the risk/resilience factors previously noted. Thus, capacity building also requires manager training regarding the constructs surrounding systemic and traumatic stress and the role of management in either promoting resilience or increasing distress.

Individual and group resiliency increases as staff and managers gain awareness of the issues and their roles, and as they make adaptive shifts in their attitudes and behaviours. As people deal successfully with the most pressing issues, they often become aware of less obvious areas of concern. With increased capacity for adaptive change, these second and third order issues are more likely to then be addressed. In general, once the wellness wheel starts turning, it often generates momentum as people become increasingly confident and knowledgeable.

At the most fundamental level, we are concerned with culture change. With supporting a fire-fighting culture that values its human resources, and possesses the skills and knowledge to cope innovatively with the wide range of presenting challenges.

Given our current understanding of the particular workplace stresses and challenges facing fire-fighters, and our knowledge about the mechanisms, effects and risk/resilience factors, it is critical that fire-fighting organizations effectively address these issues. In addition to the specific internal strategies noted in the previous section, the fire-fighting community needs to consider the wider social context of this work. Elements such as funding levels, pension benefits, public support and respect, and media relationships all play a role in the stress levels experienced by fire fighters.

In summary, most people would agree that a well-staffed, healthy and capable fire-fighting community is a vital component of a safe and healthy society. It is imperative that a career in fire-fighting be accurately seen as a fulfilling and desirable occupational choice.

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