

White Paper

Suicide Surveillance, Prevention, and Intervention Measures for the US Fire Service

Findings and Recommendations for the Suicide and Depression Summit

National Fallen Firefighters Foundation
Everyone Goes Home® Project
Behavioral Health Initiative (FLSI 13)

Richard Gist, Ph.D.
Kansas City (Missouri) Fire Department
and
University of Missouri-Kansas City

Vickie H. Taylor, LCSW
National Fallen Firefighters Foundation
and
Prince William County (Virginia) Community Services Board

Scott Raak, EMT-P
Kansas City (Missouri) Fire Department
and
Park University

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Abstract

The American fire service has been rocked in recent years with reports of apparent “suicide clusters” in large, metro fire departments. Chicago, Phoenix, Philadelphia, and other agencies have experienced high profile suicides in close proximity, sparking a dramatic upsurge in concern for understanding the incidence of suicide in firefighters, what particular factors may leave a firefighter vulnerable, and what avenues are available or can be developed to help firefighters, their coworkers, their departments, and others to help prevent these tragic losses. The National Fallen Firefighters Foundation, as an extension of its ongoing efforts to improve the behavioral health and personal wellbeing of firefighters and their families as a critical element of its *16 Firefighter Life Safety Initiatives* (specifically, FLSI 13: *Firefighters and their families must have access to counseling and psychological support*), convened a summit that brought several of the nation’s leading researcher/practitioners in the area of suicide together with a wide sampling of fire service representatives to review the current “state of the science” with respect to understanding suicidal behavior and the current “state of the art” with respect to prevention and intervention. This white paper provides an overview of those discussions and recommended starting points for strategic planning of action.

Background

Suicide is a complex phenomenon that is not well understood, even by many professionals called to deal with its prevention and intervention. Though often described as among the “leading causes of death” in the United States (cf. CDC, 2009; DHSS, 1999; NIMH, 2007), suicide is not technically a cause—it is rather a *mode* of death, a medicolegal determination regarding intent.

Cause of death is a judgment by the certifying authority (attending physician, medical examiner, or coroner) regarding the underlying disease process that led to the *mechanism of death*—the physiological conditions incompatible with life—that brought about the decedent’s final demise (e.g., renal failure, respiratory arrest, cardiac insufficiency). Suicide is, in fact, a *mode of death*—one of four options the certifying authority declares to classify the death for legal purposes. The options are:

Homicide if the person has died from causes arising external to his or her own bodily systems at the hand another person acting with proximal intent (i.e., intending to cause death at that time by those means).

Suicide if the person has died from causes arising external to his or her own bodily systems by his or her hand and with proximal intent (i.e., intending to cause death at that time by those means).

Accident if the person has died from causes arising external to his or her own bodily systems absent a finding of proximal intent (whether by actions of another, actions of his or her own, or simple misadventure).

Natural death is presumed if none of these external conditions apply.

These matters are far more complex than many persons, even medical and legal professionals, often realize. Consider a death by hanging: The mechanism of death from hanging is poorly understood and still debated, despite its historical prominence as a method of bringing about death (see, for example, Boghossein, Clement, & Sauvegeau, 2010; Clement, Redpath, & Sauvegeau, 2010). Hanging by others, whether as a form of legal execution or at the hands of a murderous lynch mob, is clearly homicide but hanging by self may be either a suicide or an accident. Autoerotic asphyxia, for example, results from very deliberate hanging of oneself but the proximal intent was not to die at that time by that means; accordingly, these deaths are classified as accidents. The ultimate index for a determination of suicide must rely on a decision about the individual intent of a person now deceased. Absent a note or a clear, proximal declaration of intent (present in only a small minority of cases), that determination remains speculative at best.

Even the most detailed procedures for attempting to resolve equivocal determinations of intent are limited in their efficacy and utility. Psychological autopsy—a more or less systematic attempt to retrospectively reconstruct such data (Sneidman, 1994)—has long been questioned with respect to its validity and reliability (Selkin, 1994). Very serious misadventures, including a high profile case involving a 1989 explosion aboard the USS Iowa that led eventually to a review by an expert committee of the American Psychological Association and ultimately a Congressional hearing (Poythress *et al.*, 1993), have exacerbated poor empirical showings for the technique (Pouliot & de Leo, 2006) and, while proponents have endeavored to create more uniform procedures and encourage their consistent application (Snider, Hane, & Berman, 2006), its use remains controversial. Accordingly, interpreting suicide statistics proves uncommonly tricky.

Of even greater concern is the impact that misstatements regarding frequency, causes, risk factors, and such may hold for vulnerable populations. Social modeling is a known risk factor that can be exacerbated by public presentation and commentary (de Leo & Heller, 2008). Failure to properly deconstruct and analyze perceived variations in rates may lead to misperceptions and misattributions (Gist, 1987) that can, in turn, diminish protective effects of rarity and perceived deviance that help inhibit initiation of suicidal behavior (Insel & Gould, 2010). The results can include paradoxical impacts from the message intended to be preventive. Paradoxical impacts of intervention, even and especially intervention using contemporary antidepressant therapies, have been widely reviewed (cf. Pompili *et al.*, 2010).

While increased attention to suicides among firefighters has led to a strong sense of urgency in many quarters and a heightened desire to take strong and immediate preventive action, there has been very little in the way of strong evidence to shape those

responses or guide responsible action. It has long been established that only a very few approaches have shown any empirically demonstrable effect on curtailing suicide rates in the general population (Gunnell & Frankel, 1994) and the state of the art has, unfortunately, not progressed in that domain (Mann *et al.*, 2005). The National Fallen Firefighters Foundation (NFFF), as a part of its *Everyone Goes Home*® project, convened a summit meeting at which three of the nation's leading academic figures in the study and prevention of suicide spent two days providing a detailed overview of critical issues to representatives of the nation's leading fire service constituency organizations to help provide the foundation for an evidenced informed strategic plan to address suicide in the industry and its effects on firefighters, their families, and the organizations and communities they serve.

FLSI 13: The Everyone Goes Home® Behavioral Health Initiative

The National Fallen Firefighters Foundation was chartered by Congress to honor firefighters killed in the line of duty and provide support to their families and survivors. Its early work centered on memorial activities but grew systematically to encompass initiatives to prevent firefighter fatalities and enhance the health and safety of emergency response personnel. The Foundation established its *Everyone Goes Home*® project to develop strategic plans that could facilitate substantial reductions in firefighter line of duty mortality. The project's first Firefighter Life Safety Summit convened in Tampa during March, 2004; from that session emerged 16 Life Safety Initiatives to guide the program's advocacy efforts. Firefighter Life Safety Initiative 13 addressed the need for counseling and behavioral health assistance for firefighters and their families. The 16 Life Safety Initiatives have stimulated a variety of research, development, and standards making activity. A second National Life Safety Summit was convened in Novato, California, during February, 2007 to review progress, incorporate emerging findings and directions, and refine the focus of activity respecting each of the initiatives. Established researchers and practitioners from relevant content areas were commissioned to develop white papers regarding the state of research, practice, and implementation in each content area. Those white papers (National Fallen Firefighters Foundation, 2007) were utilized to guide the deliberation of industry groups assigned to each initiative; each group was charged to create an action agenda regarding its assigned initiative and to generate a strategic plan for its implementation.

The white paper regarding Initiative 13 (Gist & Taylor, 2007) broadened the scope of the initiative to include behavioral science and behavioral issues beyond the availability of counseling for personnel and their families. It was noted that the academic literature contained increasingly sophisticated and extensive research respecting conditions, interventions, and delivery systems relevant to firefighter health and safety but it was also recognized that these were neither reflected in fire service training and protocols nor reliably recognized and applied by those typically involved in providing occupational behavioral health services to firefighters and their families. A series of recommendations was offered to guide work toward creating accessible pathways to efficacious, evidence

based behavioral health assistance to effectively serve firefighters and their families. A Strategic Plan (Gist, 2007) was created to initiate a process that could operationalize the recommendations of the Life Safety Summits by building effective linkages between the best current research and practice information in psychology, medicine, and public health and the fire service organizations and interests that could guide their translation into useful, effective, and cost efficient products for fire and EMS application.

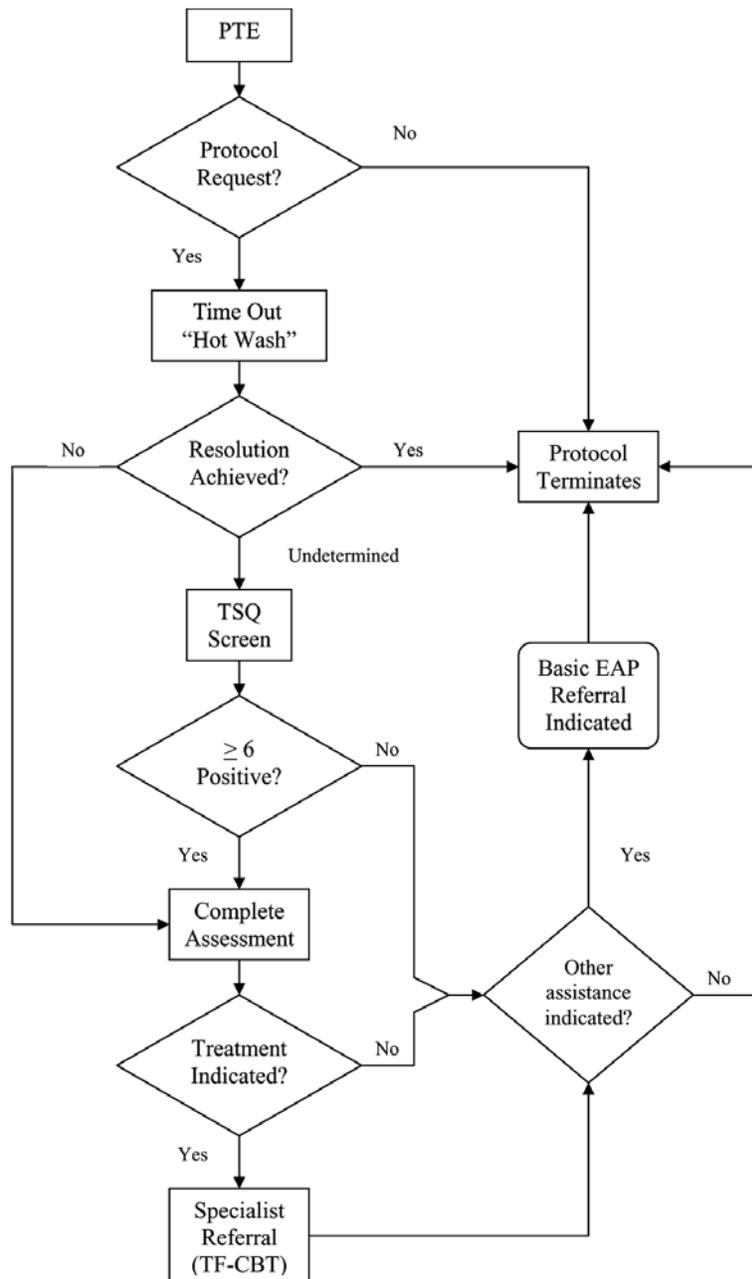
The strategic plan proposed a consensus process that would begin by bringing together approximately a half dozen carefully selected researchers and academics closely affiliated with research programs examining areas important to occupational behavioral health needs of the fire service. The initial meeting held in Baltimore, Maryland, on December 4-5, 2008, began with a focus on occupational exposure to potentially traumatic events (PTEs). The core group for the first session is listed in Table 1.

Table 1
Organizations Represented at First *FLSI 13* Consensus Meeting

<i>Research and Practice Interests</i>	<i>Fire Service Organizations</i>
National Center for PTSD	International Association of Fire Fighters
NIOSH/CDC	International Association of Fire Chiefs
National Crime Victims Center	National Volunteer Fire Council
Center for Study of Traumatic Stress	National Fire Protection Association
Employee Assistance Professionals Assn	National Association of EMS Physicians
Firefighter Health Research Group/KCUMB	North American Fire Training Directors

The consensus group drew upon presentations from the research programs represented and input from fire service organizations to recommend a basic protocol for organizational response to PTEs and to identify resources that would be need to be created to make the protocol effective; the process chart for the recommended protocol is presented as *Chart 1*. The complete report of that session has been published by NFFF (Gist, Taylor, & Neeley, 2010) and a more complete summary of the project to date is moving toward publication (Siarnicki, Gist, Taylor, & Raak, in press).

A series of specific projects was outlined to develop and disseminate resources identified as necessary for successful implementation. Each project was then assigned to a project team. Two additional consensus groups, one related to member assistance programs and another addressing self help and peer support, were convened to ensure that issues identified with respect to these critical components received adequate address. The following outline provides a snapshot of each project, its development status as of this date (October 2011), and the projected timeline for its release. All materials are designed for web based dissemination to ensure that information and skills are readily available to all intended users.



Note: PTE = potentially traumatic event; TSQ = Trauma Screening Questionnaire; EAP = employee assistance program; TF-CBT = trauma focused-cognitive behavioral therapy.

Chart 1

**Process Chart
Recommended Organizational Protocol for PTE**

FLSI 13 Projects and Status (October 2010)

1. *After Action Review*: Adapts military AAR approach for fire service application at the company level as a routine element of every call; improves capacity for organizational learning, supports process and skill development, and provides foundation for address of high impact calls in ecologically intact venue.

Product: Continuing education module for widespread distribution

Status: First pilot presentation July 22 at *Firehouse Expo*; second pilot August 25 at *Fire Rescue International*. Available for download and distribution December 15, 2011.

2. *Psychological First Aid*: Provides evidence supported tool for firefighters and EMTs to utilize in all service contacts; promotes acquisition and regular application of skill sets needed for mutual support following high impact calls while enhancing daily performance and citizen satisfaction.

Product: Continuing education module for widespread distribution

Status: NCPTSD contracted to adapt PFA for first responder utilization. Instructor manuals and instruction materials completed; video and PPT in production. Available for download and distribution February 15, 2012

3. *Screening and assessment materials*: Ensure access to empirically validated screening and assessment tools for effective early identification and proper referral of clinically diagnosable reactions.

Product: Web access to quick screening tool for wide application and clinical assessment materials for behavioral health providers.

Status: Validated screening tool (TSQ) identified and permissions secured to utilize; access to assessment materials through NCPTSD site. Web functionality under construction. Available December 15, 2011.

4. *Behavioral Health Assistance Program standards*: First consensus group identified need to provide clearer structure and specification; second consensus group explored best practices and standards and recommended revisions to fire service standards to incorporate these.

Product: Proposed revisions to Chapter 11 (member assistance programs) of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

Status: Recommended revisions drafted, reviewed, and submitted; preliminary adoption by technical committee; now in comment period. Pilot training for existing EAPs scheduled to occur following final adoption; sample RFPs and specification checklists for fire departments will be prepared and disseminated following final adoption. Projected availability March 15, 2012.

5. *Web training in evidence supported intervention for clinicians treating fire service:* Provides highly accessible, no cost access to training in evidence based treatment of choice to journeyman clinicians treating firefighters and their families using thoroughly evaluated format and mechanism.

Product: Web based training program to behavioral health clinicians

Status: AFG/FPS grant awarded to Medical University of South Carolina/National Crime Victims Center to produce web training program in Cognitive Behavior Therapy with Prolonged Exposure. Projected availability June 30, 2012.

6. *Support for effective peer assistance efforts:* Provides mechanisms for structured peer support that reflect current evidence informed best practices.

Product: Standards for peer support; specific training models

Status: International consensus standards for peer support now in final preparation for publication. NCPTSD adapting Navy/Marine *Stress First Aid* training for use in fire service; manual reviewed by peer support consensus group for use as web based interactive training. Projected availability July 31, 2012.

Objectives of the Summit Session

The symposium was created to help fire service organizations:

1. critically evaluate current empirical information on the incidence and epidemiology of suicide and apply to observed trends in the fire service;
2. explore the application of best current empirical models of suicide behavior to fire service personnel, with specific attention to occupational factors that may impact suicidal actions;
3. critically examine current best practices in suicide prevention and intervention, with specific emphasis on empirical evidence of efficacy, effectiveness, and impact;

4. consider options available to the fire service to take reasonable and prudent actions to prevent suicide and to assist survivors when suicide occurs; and
5. plan strategies and mechanisms to translate identified best practices and prevention/intervention options into programs that can be disseminated and applied in all segments of the fire service.

The Summit was convened July 11-12 in Baltimore, Maryland. Nearly 50 fire service representatives (see complete listing of attendees and affiliations in Appendix 1) convened to hear overviews regarding the state of the art and state of the science from the following key researchers and practitioners:

Matthew K. Nock, Ph.D. is Professor of Psychology and Director of the Laboratory for Clinical and Developmental Research at Harvard University. Among the nation's leading authorities on the epidemiology of suicide and self-injury, his research is multi-disciplinary in nature and uses a range of methodological approaches (e.g., epidemiologic surveys, laboratory-based experiments, and clinic-based studies) to better understand how these behaviors develop, how to predict them, and how to prevent their occurrence.

Thomas Joiner, Ph.D. is the Robert O. Lawton Distinguished Professor in the Department of Psychology at Florida State University. He leads one of the nation's most respected and most productive research programs tackling the etiology of suicide and the effective prevention of suicide behavior. He has published scores of books, papers, and reports in both academic and popular media, and leads a multimillion dollar effort examining prevention of suicide among military personnel.

Alan L. (Lanny) Berman, Ph.D. is Executive Director of the American Association of Suicidology and president of the International Association for Suicide Prevention. He has also served as Director of the National Center for the Study and Prevention of Suicide at the Washington School of Psychiatry (1991-1995) and a Professor of Psychology at American University (1969-1991). He stands among the nation's most respected commentators on contemporary best practices in suicide prevention and intervention.

PowerPoint presentations from each presenter are available on the FLSI 13 page at <http://www.everyonegoeshome.org>. Facilitated by Dr. Richard Gist of the Kansas City (Missouri) Fire Department and the Department of Emergency Medicine at the University of Missouri-Kansas City and Vickie Taylor, Behavioral Health Consultant to the National Fallen Firefighters Foundation, participants next devoted their attention to exploring how the information presented should be melded into a set of strategic initiatives to help the American fire service construct a set of evidence informed, best practice approaches to addressing suicide and depression among firefighters.

Elements of Discussion

Epidemiology of Suicide in the Fire Service

Even at a population level, the epidemiology of suicide is fraught with conundrums (Nock *et al.*, 2008). Terminology and definitions vary, and data repositories are not always complete or complementary. Still, enough is known to be able to classify suicide as a serious public health issue in the United States and elsewhere.

Among white males, by far the dominant demographic in the American fire service, suicide rates rise abruptly in the early twenties—a typical age for entering the occupation, especially in career service. Rates trend slowly upward throughout typical working years, spiking once again at the time of typical retirement. More than 70% of US suicides are among white males. Figure 2 below (from Nock *et al.*, 2008) shows rates by age for a variety of demographic groups.

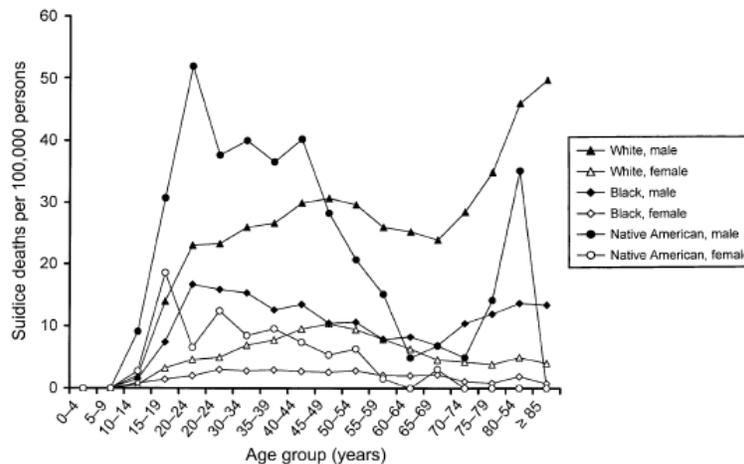


FIGURE 1. Numbers of suicide deaths in the United States, by race/ethnicity, sex, and age group, 2005. Data were obtained from the US Centers for Disease Control and Prevention's Web-based Injury Statistics Query and Reporting System (WISQARS) (36). Data points based on fewer than 20 deaths per cell may be unreliable. These include those for persons under age 10 years for all groups, those for persons aged ≥ 80 years for Black males, those for persons aged 10–14 years and ≥ 55 years for Black females, those for persons aged 10–14 years and ≥ 45 years for Native American/Alaskan Native males, and all points except those for persons aged 10–14 years for Native American/Alaskan Native females.

Firearms are the most common method of completed suicide, with approximately 57% of all suicides by gunshot. Firearms account for almost two-thirds of suicides and slightly more than one-third of suicides by women. Poisoning (dominated by pharmaceutical overdoses) accounts for slightly more than 30% of female suicides but, among males, is overshadowed by hanging and suffocation (20%). Suicides are more common during Spring and early summer.

Suicide fatalities are not, however, a viable group for study. While some number of completed suicides arise without the known presence of a premeditated plan, the transition from ideation to action often involves a suicide plan as a midstep (Kessler, Borges & Walters, 1999). Lifetime prevalence for ideation has generally been found to

range from 5-14% in US samples; 34% of those with ideation form plans and 72% of those with plans proceed to an attempt (Nock *et al.*, 2008). It should be noted, however, that 26% of persons with ideation but no plan proceed to make an unplanned attempt; the majority of transitions take place within the first year.

Suicidal ideation is more likely to be found among those with depression, anxiety, conduct disorders, and substance abuse; transition from ideation to attempt is more than twice as likely among those with anxiety disorders (such as PTSD) and conduct disorders, and almost thrice as likely in the presence of alcohol abuse or dependence (Nock *et al.*, 2010). Number of active stressors also influences this progression. Unfortunately, only about 40% of those with serious suicide ideation receive treatment (Bruffaerts *et al.*, 2011).

Despite the level of concern in the fire service and the perceptions of an escalating problem, very little is actually known about suicide rates among fire service personnel. Death certificates do not universally reflect data regarding occupation, making it difficult to track these data or construct trends within them. Since the American fire service contains a very substantial volunteer component, even those states with partial occupational data are not likely to fully or accurately reflect fire service affiliation. Moreover, since a substantial element of interest includes suicides of retired firefighters, occupational data, if present, may reflect occupation at time of death rather than dominant occupation during other periods of life. The result is a data pool too sparse to be truly probative.

Where detailed study has been undertaken in related occupations, as in Marzuk *et al.*'s (2002) study of suicide among New York police officers, laborious on-site work was required to investigate death records by hand. Despite perceptions of escalating increases stimulating concern, what increases were documented paralleled expected increases within an aging white male cohort and remained below expected rates for similar cohorts of the general population. A similar pattern may exist in the fire service, where the occupation is even more strongly dominated by an aging white male cohort. Efforts to investigate this in depth, however, have not yet been undertaken. Several major and extensively funded projects are now underway respecting suicide in military populations; these may provide both models and impetus for specific study of fire service personnel.

Recommendations

1. The limited state of current empirical information and understanding regarding suicide in the fire service should be clearly acknowledged in all discussions and presentations on the subject, no regardless of source, audience, or objective.
2. NFFF and other fire service constituency organizations should advocate for funding and support of empirically sound epidemiologic study of fire service suicide to provide a solid basis for understanding and action.

3. Researchers working on military projects should be specifically recruited, encouraged, and supported to translate salient elements of that research to investigate suicide in the civilian fire service.
4. NFFF and other fire service constituency organizations should advocate funding and support for similar empirically sound epidemiologic study in fire service populations of conditions known to interact with and/or exacerbate suicide risk (e.g., depression, PTSD, conduct disorders, and substance abuse), where speculation regarding prevalence is widespread but data are presently limited.
5. Advocates for action should be admonished to couch presentations regarding perceived incidence, presumed causal factors, potential interventions, and such cautiously and conservatively, sticking closely to established empirical findings, in order to avoid inadvertent paradoxical impacts.

Occupational Factors Affecting Suicide Risk for Firefighters

Kurt Lewin (1951, p. 169) is credited with having penned the shopworn maxim, “There’s nothing so practical as a good theory.” Good theory not only guides formulation of strategies and structures; it provides for their refinement through generation of theory-relevant hypotheses and their testing in most application-relevant of all social laboratories: the field and community (Gottfredson, 1984). One of the serious shortcomings that has hampered mounting efficacious approaches to suicide prevention has been the lack of a cogent theory regarding the evolution of that particular outcome.

Suicide is not itself a condition or disorder—it is an outcome that may result from many permutations of risk factors, underlying conditions, individual dispositions, interpersonal dynamics, social interactions, and more (Pitman, 2007). Like travelers changing planes at a busy hub airport, the fact that all passed through a common portal does not mean that they shared a common origin, a common path of travel, or a common destination—it certainly does not imply that they shared a common purpose for their travels or a common motivation for taking flight. Finding commonalities that can inform meaningful intervention requires developing a conceptual framework that elucidates the pathways from experience to ideation, from ideation to intent, and from intent to action.

Arguably, the most productive formulate to date is found in Joiner’s *Interpersonal Theory of Suicide* (Joiner, 2005; van Orden *et al.*, 2010). Like most highly productive theories, it is deceptively simple in its basic formulation but uncommonly fecund in its capacity to explain empirical findings and generate testable hypotheses.

Joiner (2009) summarized its implications in simplest terms by saying that people die by suicide “because they want to and because they can.” Deconstructing those two basic propositions, as simplistic as they may seem, leads to defining three essential conditions involved in generating motivation for suicide and the capability to act on that motivation.

- (a) *Thwarted belongingness* is the belief that one is alone, without connection or having lost connections one felt to be essential to meaning, purpose, or sense of self; it is the feeling that one is no longer an integral part of family, friends, workplace, or other relevant index groups.
- (b) *Perceived burdensomeness* arises from the perception that one's continued existence creates a drain on family, friends, coworkers, or even society; inherent in that belief is the perception—almost invariably a misperception—that the world would be a better place if one were no longer a part of it.

When these perceptions exist concomitantly, the result readily becomes a desire to die and suicidal ideation is, essentially, a natural consequent. But the desire to die, even in the presence of persistent ideation and a suicide plan, is not sufficient to precipitate suicide behavior. Moving from thought to action demands the capacity to carry out an act that is contrary to perhaps the most primordial instinct of living things, the drive for self-preservation.

- (c) *Capability for suicide* is found where some combination of experience and disposition becomes sufficient to overcome one's natural aversion to pain and annihilation. This may result from a learned capacity to ensure or ignore pain through repeated exposure and/or habituation; progressive disinhibition through prior attempts, exposure to combat or violence, or modeling effects of suicide in others; or any of a number of routes and vectors. This capability *must*, however, be present for ideation to evolve into action.

It is therefore only a narrow intersection set between these three conditions that provides fodder for lethal suicidal action. That intersection is depicted in Figure 2 below (from van Orden *et al.*, 2010).

An abundance of empirical information attests to the robust character of this formulation for understanding and predicting suicidal action (see van Orden *et al.*, 2010, for detailed review). It has also found utility in helping to target efforts to prevent suicide in particular populations (cf. Joiner, 2009). Its possible utility on understanding the particular risks a firefighting career may present merits fuller exploration.

Capability for suicide is typically the limiting factor in transition from ideation and planning to lethal action. Firefighters, however, are particularly apt to be exposed and habituated to pain and to the inevitability of death. The propensity to injury among active firefighters is well documented (USFA, 2008), meaning that many if not most firefighters learn to. Firefighting well exceeds other occupations in frequency of occupational injury, most commonly related to the immense exertion required and the risk laden environments in which that exertion must take place (Walton *et al.*, 2003). Moreover, death is a frequent feature in situations firefighters encounter in the normal course of their duty and loss of one's own life is an ever-present occupational risk; these factors compel

firefighters to come to terms with their own mortality in ways that are far less striking for persons not in such high exposure work. As a consequence, the capability for suicide among firefighters is likely much further evolved, whether or not desire or ideation may be present.

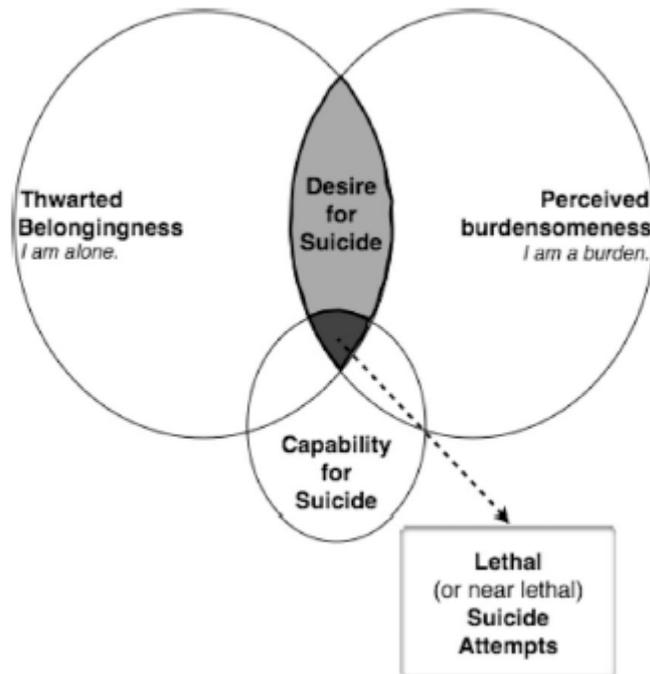


Figure 2
Venn Diagram of Predisposing Conditions

Belongingness and personal contribution—contrapositives of the conditions combining to create a desire for suicide—are generally accepted to represent strong elements of fire service culture. Firefighters are extraordinarily committed to their jobs and the roles they represent (Lee & Olshfski, 2002); central to those roles is a strong belief in the value of service to others and a firm belief that one's contribution in that role gives life meaning (Lasky, 2006). The entire concept of brotherhood permeates occupational life in the fire service (Crosby, 2007), emphasizing how the criticality of belongingness is amplified for firefighters. Accordingly, since perceived contribution and brotherhood are paramount values and rewards for those in fire service and the very nature of the occupation promotes tolerance of pain and habituation of fear, the intersection—when it in fact occurs—may be even more profound for a firefighter.

The potential implications arising from application of this theory to suicide among firefighters are legion. Heightened risk can be suggested wherever factors interrupt or

diminish belongingness (e.g., retirement, separation) or diminish perceived contribution (e.g., injury or disability, impact of escalation depression or substance abuse). Points of intervention centered on such risk factors seem obvious starting points. First, however, we must give careful consideration to what has been empirically established with respect to the risks, benefits, and efficacy of intervention efforts.

Recommendations

6. Funding and support for empirical testing of applicability, goodness of fit, and utility of the Interpersonal Theory of Suicide with respect to firefighter populations should be strongly advocated.
7. Elements of belongingness and personal contribution in fire service culture should receive particular exploration with respect to the roles that disruption of these factors may play in heightened suicide risk.
8. Approaches to screening and intervention should be developed and tested for use in fire service populations.

State of the Art/State of the Science in Suicide Prevention

Prevention of mortality and morbidity in populations is an essential element of public health practice (Carlton & Simon, 2002). Linking research and evaluation to effective practice has been a major objective for evidence based practice in public health, and most especially in the domains of health promotion and prevention (Soto, Green, & Bailey, 1997). The US Public Health Service developed and published a National Strategy for Suicide Prevention to stimulate movement toward an evidence based approach to suicide as a public health problem (USPHS, 2001); its model for building that strategy is captured in Figure 3 below (from SPRC, 2010).

Effective surveillance (to wit, accurate tracking, analysis, and reporting of incidence; see Teutsch & Churchill, 2000) has already been discussed as a specific and pressing need with respect to fire service suicide. The need for intervention programs to be driven by well tested theoretical constructs has also been discussed. The remaining steps center on developing and testing specific interventions, implementing those in target populations, and evaluating their impacts on incidence and impact of the targeted behaviors or conditions. A logical starting point for that effort lies in examination of approaches seen as current best practices, assessment of their empirical success in meeting relevant objectives, and consideration of their potential for adaptation to address specific risk factors impacting suicide identified as potentially salient to fire service populations. That examination formed the basis for the third segment of discussion and is summarized in this segment of the report.

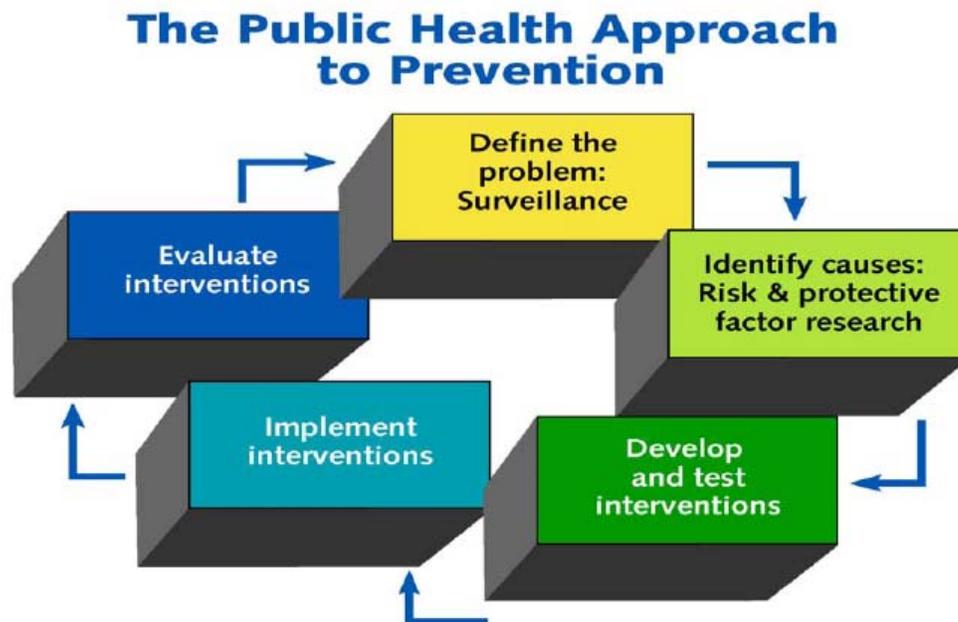


Figure 3

Efforts to prevent suicide and address its impact on survivors include interventions directed toward several levels of the Institutes of Medicine Continuum of Care (see Figure 4 below). *Universal* approaches are directed toward entire populations in relatively unselected fashions with the objective of impacting global incidence; *selective* interventions are more targeted, typically to those identified at risk and/or those likely to hold or encounter specific risk factors. *Indicated* interventions are directed to those showing identifiable symptoms but not yet displaying the targeted injury or disorder (often as the result of specific screening endeavors). Other elements in the treatment and maintenance components are relevant to those with expressed ideation or those who have attempted suicide while *after care* aspects may be argued to be applicable for survivors.

The short summary regarding both the state of the art and state of the science with respect to suicide prevention might be considered a quintessential “good news; bad news” report. The good news is that a great deal of effort has been placed into developing an evidence based approach to a coordinated suicide prevention strategy; that a significant investment has been made in research, program development, implementation, and evaluation at all levels of the prevention continuum. The bad news, however, would be that very few of these specific endeavors have been shown in empirical analysis to have demonstrated substantial efficacy in achieving “bedrock” objectives with respect to preventive outcomes (Mann *et al.*, 2005). The bad news must also contain an added caution that some broader scale efforts, especially ones connected to “awareness” strategies, have been demonstrated to hold the potential for paradoxical outcomes—to inadvertently increase the probability of suicidal action in particularly vulnerable subsets (cf Garland & Zigler, 1993).

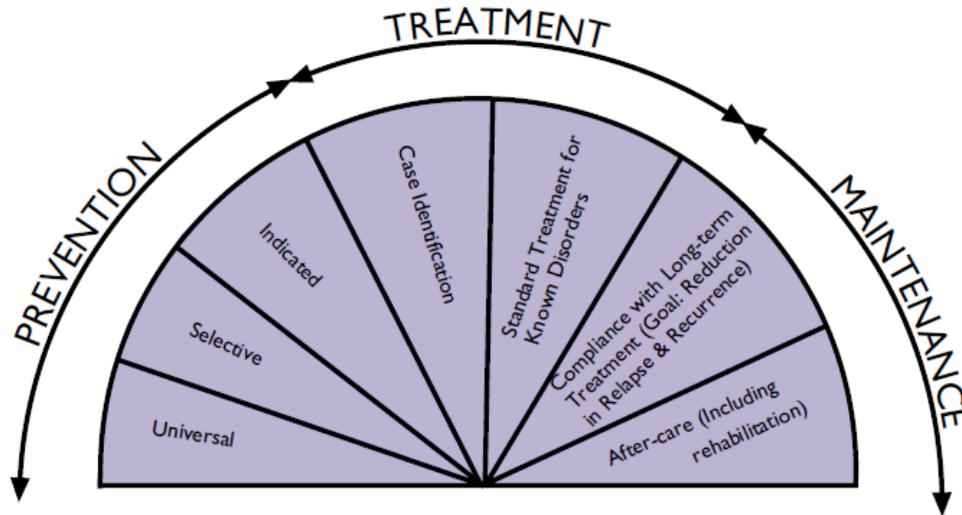


Figure 4
Institutes of Medicine *Continuum of Care* Model

Universal programs have shown particular difficulty generating evidence of empirical efficacy but this is not atypical for broad scale programs in general. Attempts to quantify a potential behavior that does not take place in ways that allow causal attribution to be made are challenging endeavors at best; when the target variables are relatively rare events taking place within very large pools of potential actors, detecting meaningful difference is more challenging still. Accordingly, selective and indicated prevention programs are often seen as more promising avenues to pursue. An alternative strategy involves efforts to accentuate or enhance “protective” factors but these are dampened by insufficient empirical demonstration of clearly protective factors that are readily malleable to external enhancement.

Only one approach to selective or indicated prevention has shown clear empirical efficacy with respect to suicide prevention and that involves restriction of access to lethal means. Firearms, for example, are particularly lethal due to their capacity to inflict irreversibly mortal injury with a single twitch of a finger (Shnassa, Catlin, & Buka, 2003). Where drug ingestion, for example, typically allows some window of time in which the patient may either reach out for help or be found by others, a gunshot wound to a mortal location allows no such reversal of fate. Restricting access to firearms for all possible actors or at least those with clear risk factors or stated intent would seem a logical way to interrupt the transition from ideation to action, and such programs, where implemented, have indeed shown effects (Mann *et al.*, 2005). Other programs, such as suicide barriers along places known for fatal jumps or the transition from coal gas to less toxic fuels in Britain, provide documented examples of such strategies. But firearms are the leading instrument of suicide in the United States, especially among white males, and by far the

leading instrument in known fire service suicides—and restriction of access to firearms raises, in this country, profound constitutional issues and engenders vociferous opposition at the mere mention.

Indicated preventive measures provide another, more focused strategy and include specific screening and referral measures. Empirical efficacy has been shown for programs that instruct primary care pediatricians in screening for suicide risk factors in their patient populations (Wintersteen, 2010) and a standardized training model for best practice approaches is available in a webinar format for primary care providers (AAS, 2010). While listed by the Suicide Prevention Resource Center in its Best Practices Registry (SPRC, 2010), its listing carries a disclaimer that empirical evidence of efficacy has not been reviewed. Acronym models for screening based on factors and characteristics known to be associated with suicidality have been proposed and are in common usage (e.g., “SAD PERSONS” and “IS PATH WARM”) but their utility has been hampered by both limited sensitivity and weak specificity.

Appropriate treatment of those identified and referred remains an area in which evidence based practice standards are less well established than might be considered desirable (see Hepp *et al.*, 1999, for review). Standards exist for treatment of depression and other diagnosable mental disorders associated with suicidal behavior (e.g., Cochrane Reviews, National Institute for Clinical Excellence, *et al.*) but what specific standards exist regarding suicide behavior are typically less directive with respect to standards of care and less specific with respect to outcomes sought or expected (cf. Lelliott, 2004). Variants of cognitive behavior therapy (CBT) show the most support with respect to empirical efficacy (Comtois, 2002) but tend to be less readily accessible through treatment resources commonly available to firefighters and their families; recalcitrant cases, especially those with borderline features, have been successfully treated with Dialectic Behavior Therapy (DBT, a specific CBT variant) in a range of studies (cf. Linehan *et al.*, 1994). Follow up procedures using brief contacts have also shown a preventive effect with respect to repetition (Motto & Bostrom, 2001; WHO, 2008).

The area of tertiary intervention (after care) for survivors is particularly relevant to fire service suicides. The tightly knit brotherhood characteristic of firefighters is readily disrupted by a suicide in its midst; since alienation and withdrawal typically precede suicide, the impact is often confounded by ambivalence and guilt over prior treatment and/or lack of pursuit. Given the association of suicide with issues such as substance abuse, conduct disorder, and other conditions with deleterious impact on interpersonal relationships, there may be an extensive history of strained interactions. Moreover, since the brotherhood within any given fire service organization is such that most everyone has or has had some knowledge of, interaction with, and connection to any other member, awareness of such events and circumstances is virtually inescapable. Rumination about blame and responsibility can take many forms and many of those forms can prove counterproductive to individual and organizational resolution.

“Contagion” or “clustering” effects can be one consequence of these social factors. The visibility of a suicide and its sequelae can provide a modeling effect or sorts to other vulnerable individuals, making the option seem more concrete and more “doable.” This both lessens inhibition and increases “suicide capability”; together, these help increase the probability of moving from ideation to action (Joiner, 1999). The effects of serial suicides on a given department can be particularly disruptive to its social fabric and generate impetus and urgency with respect to large scale intervention efforts. While the drive to take action may be seen as a positive force, clear courses for positive action have not been readily available and some routes that may seem positive may harbor the potential for paradoxically deleterious impacts (Pitman, 2007).

Peer focused intervention approaches are widely established but the optimal structure for such programs and the efficacy of their component actions has never been well established. Despite the popularity of peer-based suicide prevention programs in schools, for example, only one such program has actually demonstrated empirical efficacy (Wyman *et al.*, 2010). Psychoeducation elements, a typical core element of peer efforts, have similarly shown only limited efficacy and only in relatively narrow applications and populations (Mulligan *et al.*, 2010). Their greater benefit may be found in social support, which has shown beneficial impact with respect to suicide contagion (Joiner, 1999).

Programs with most promise seem to have broader objectives than suicide alone, and are typically imbedded simultaneously in a range of organizational loci processes. The Air Force suicide prevention program is one such multilayered model that has show empirical impact (Knox *et al.*, 2003); it contains 11 components that range from surveillance systems and psychoeducation to leadership and community support. Empirical support for sustained impact has recently been reported (Know *et al.*, 2010) but the need for continuous management of all aspects is stated as a specific challenge.

Recommendations

9. Intervention programs should be grounded in specific and relevant theory, and should be informed by reliable empirical surveillance data regarding incidence and impact.
10. Prevention programs containing a relatively narrow focus (i.e., suicide specific) appear less likely to yield substantial and sustained impact than do programs directed more generally toward behavioral health, social support, and treatment of disorders and conditions associated with suicide.
11. Programs to provide accessible, inexpensive instruction for fire service health care and behavioral health providers (e.g., fire department physicians, EMS medical directors, occupational health nurses and physicians, employee assistance provides) in screening for suicide ideation and intent should be developed and widely disseminated.

12. Providers delivering behavioral health care to firefighters and their families should have access to accessible, inexpensive instruction in evidence based interventions with demonstrated efficacy for treating self injurious behavior (e.g., CBT, DBT)
13. Peer outreach and support programs, where present, should have access to appropriate training and assistance in addressing suicide as an element of a comprehensive outreach and health promotion strategy.
14. Department-level efforts, where undertaken, should represent broad based strategies to impact a range of protective and risk factors, and should be imbedded within a variety of organizational loci and processes.

Actions and Priorities

Extensive discussion was devoted to identification of programmatic options and priorities. Discussion centered on generating starting points for appropriate action based on information garnered from the overviews provided. The following recommendations reflect points of general consensus:

15. NFFF should incorporate efforts to address suicide into projects of the Behavioral Health Initiative (FLSI 13) of its *Everyone Goes Home*® project.
16. Efforts of individuals and organizations addressing suicide in the fire service should endeavor to remain consistent with a structured strategic plan of action (parallel to and complementary of the *National Strategy for Suicide Prevention*).
17. Suicide prevention projects and materials should be outlined and made available in a designated area of the *Everyone Goes Home*® website. A suicide tagline should appear on all depression and suicide material consistent with the American Society of Suicidology:

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18. High priority with respect to research support should be given to epidemiologic and surveillance projects in conjunction with established academic research programs.
19. High priority with respect to research and development support should be given to adaptation of theory driven intervention projects currently underway in military settings for application in the fire service.
20. High priority in program development activities should be given to adaptation of evidence based projects training health care providers serving firefighters and their

families in screening and referral.

21. High priority should be given to building a suicide and depression component to complement web based CBT training currently in development for behavioral health providers serving firefighters and their families.
22. Priority should be given to developing suicide prevention aspects into FLSI 13 peer support projects.
23. Materials to support fire departments in integrating comprehensive suicide preventions programs into their health, wellness, and safety initiatives should be developed in conjunction with IAFF, IAFC, NVFC, and USFA.
24. Specific protocols for assisting fire departments after high profile/high impact suicides and/or serial suicides should be developed and implement by NFFF.
25. Reports of this summit, its proceedings, and its recommendations should be disseminated through fire service media and venues.

Summary of Recommendations:

1. The limited state of current empirical information and understanding regarding suicide in the fire service should be clearly acknowledged in all discussions and presentations on the subject, no regardless of source, audience, or objective.
2. NFFF and other fire service constituency organizations should advocate for funding and support of empirically sound epidemiologic study of fire service suicide to provide a solid basis for understanding and action.
3. Researchers working on military projects should be specifically recruited, encouraged, and supported to translate salient elements of that research to investigate suicide in the civilian fire service.
4. NFFF and other fire service constituency organizations should advocate funding and support for similar empirically sound epidemiologic study in fire service populations of conditions known to interact with and/or exacerbate suicide risk (e.g., depression, PTSD, conduct disorders, and substance abuse), where speculation regarding prevalence is widespread but data are presently limited.
5. Advocates for action should be admonished to couch presentations regarding perceived incidence, presumed causal factors, potential interventions, and such cautiously and conservatively, sticking closely to established empirical findings, in order to avoid inadvertent paradoxical impacts.
6. Funding and support for empirical testing of applicability, goodness of fit, and utility of the Interpersonal Theory of Suicide with respect to firefighter populations should be strongly advocated.
7. Elements of belongingness and personal contribution in fire service culture should receive particular exploration with respect to the roles that disruption of these factors may play in heightened suicide risk.
8. Approaches to screening and intervention should be developed and tested for use in fire service populations.
9. Intervention programs should be grounded in specific and relevant theory, and should be informed by reliable empirical surveillance data regarding incidence and impact.
10. Prevention programs containing a relatively narrow focus (i.e., suicide specific) appear less likely to yield substantial and sustained impact than do programs directed more generally toward behavioral health, social support, and treatment of disorders and conditions associated with suicide.

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