



BEHAVIORAL HEALTH SCREENING IN NFPA 1582 MEDICAL EVALUATIONS

Working Group Summary Report

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Facilitated and reported by: **Richard Gist, Ph.D.**

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Deputy Director/Principal Assistant to Fire Chief
Kansas City (Missouri) Fire Department

Consultant/Advisor, Behavioral Health
First Responder Center of Excellence

Executive Summary

Recommended Elements for Firefighter Health and Wellness

- Commit to a longitudinal continuum of care and resources to support and maintain the health of firefighters from entry through retirement.
- Provide an annual snapshot of personal health and wellness.
- Weave behavioral health concerns into a total picture of the firefighter's health.
- Focus on how to keep each firefighter in the fold rather than finding the factors that exclude or expel.
- Coach each firefighter to achieve and maintain health and wellness goals.

Medical Evaluations

Annual medical evaluations should communicate a regular expression of commitment to firefighters' health rather than a hurdle they must jump over to remain in the race.

Entrant Medical Evaluation: Starting strong:

Provide a baseline health status adequate to learn and execute essential job tasks.

- Frame the evaluation as a baseline health and fitness plan to be revisited annually for lifetime health maintenance, rather than a pass/fail "weed out" tool.
- Communicate a joint commitment and respect for health and wellness by focusing on assessment, information, actions, resources, incentives, and encouragement to support firefighter goals.
- Shape an enduring health and fitness mindset.

Annual Medical Evaluation for Incumbents: Supporting Health and Growth across the Career:

- Focus on keeping each firefighter healthy and fit throughout their life and career cycles.
- Provide a thorough medical and fitness assessment by a physician or qualified provider (e.g., ARNP, PA) according to NFPA 1582 standards.
- Include behavioral health screening as one element of a total health, wellness, and fitness picture.
- Offer support beyond the evaluation focused on assessment, information, actions, incentives, and encouragement to promote the firefighter's annual wellness plan.
- Inform an annual update of each firefighter's health maintenance and fitness recommendations.

Key Considerations

- Adapt and scale all efforts according to the specific community and fire service delivery system, especially where resources may be limited.
- Establish interfaces between occupational care, primary care, and specialty care via defined systems and structures, to ensure consistency and sustainability.
- Offer multiple levels of peer support to foster a supportive, productive workplace.
- Develop systemic interfaces between formal support systems and peer support elements to ensure program success.
- Consider employing health coaches to translate medical evaluation recommendations into active, achievable personal wellness plans, and to provide ongoing, personalized support to each firefighter in achieving their personal health and wellness goals.

OVERVIEW

Much progress has been made, especially across the past decade, with respect to first responder behavioral health. FRCE identified this area as critical to health and wellness programming and, along with a number of partners from the fire service, the research arena, and the practice community, has worked to support and stimulate a number of these important advances. Included have been innovative online training programs for behavioral health practitioners working with first response personnel; resources for firefighters, coworkers, officers, and families to maintain resilience, identify colleagues in need, and facilitate access to qualified providers of care; and projects to help fire departments—especially smaller organizations with limited resources to implement initiatives at the local level.



The 2022 edition of NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, adds an important element for which FRCE, the International Association of Firefighters (IAFF), and other constituency organizations have advocated. Annual medical evaluations are now to include screening for key behavioral health conditions, a provision that has the potential to greatly improve capacity for early recognition, referral, intervention, and support. Properly applied, this can not only help detect emerging clinical conditions but provide indications of subclinical distress that can be supported by coaching and assistance before more serious difficulties develop.

The provision is simple, but implementation can be challenging, especially where access to occupational health professionals with detailed knowledge of the standard and experience with the population may be limited, or where well-developed behavioral assistance programs with strong knowledge of first responder issues may not be the norm. This session brought together a cadre of professionals with expertise related to these issues to develop a recommended work plan identifying resources needed to support wide, low-cost, high-impact implementation strategies that can be made readily accessible to America's first response agencies, their personnel, and the community health care professionals who step forward to protect their health and resilience.

FRCE BACKGROUND

The *First Responder Center for Excellence for Reducing Occupational Illnesses, Injuries, and Deaths* (FRCE) is an affiliate of the National Fallen Firefighters Foundation (NFFF). The NFFF was established by the US Congressional Charter in 1992 to address firefighter line-of-duty deaths. NFFF created its trademark *Everyone Goes Home*™ (EGH) project in 2004 as a result of an industry-wide consensus effort to identify the principal preventable factors contributing to firefighter fatalities and expand the effort to address not just mortality but also morbidity factors impacting fire and emergency medical services (EMS) personnel. This effort produced the 16 Firefighter Life Safety Initiatives (FLSIs), which in turn were developed into a range of health, wellness, and safety efforts disseminated throughout the US first response community. EGH became one of the nation's most recognized and subscribed fire service programs, widely attributed as among the most substantial contributions leading to a nearly two-thirds reduction from 169 line-of-duty fatalities in 1978 (NFPA, 1987) to only 62 in 2019, the lowest recorded since these data were first collected (USFA, 2020).

FRCE was created in 2018 as a separate not-for-profit organization. Its charge is to build partnerships and coalitions that can create and implement research-to-practice (R2P) efforts designed to deliver theoretically grounded, empirically supported awareness, education, and intervention projects across all aspects of America's widely diverse first responder structure. FRCE efforts have been highly productive in its five target domains: cardiac health and disease prevention; awareness and prevention of occupational cancers; behavioral health; musculoskeletal injury prevention; and issues related to overall health and safety of firefighters (e.g., firefighter physicals; wellness and fitness programs). Established knowledge translation approaches identify the best empirical research in areas related to its mission and translate these into applied programs that can be delivered across a wide range of settings in ways user-friendly, accessible, and affordable formats.

FRCE has prioritized its efforts into five principal areas of focus: behavioral health, cancer prevention, cardiac health, health and wellness programming, and physical examinations. Its behavioral health programming has concentrated on operationalizing the components developed through EGH, FLSI 13, including the widely disseminated and adapted Stress First Aid (SFA) program. Its cancer prevention and reduction efforts have centered around FRCE's role in coordinating the work of the Fire Service Occupational Cancer Alliance, created in response to priorities emerging from the Tampa2 conferences. Cardiac health efforts have included the coordination of EGH projects focused on reducing the incidence and impact of the industry's most strongly established cause of duty-related morbidity and

mortality. Promotion of annual physical examinations for all fire and EMS personnel includes a memorandum of understanding with the International Association of Fire Chiefs (IAFC) to develop resources for firefighters and clinicians on physicals and how to best implement a physical program, the building of the work of FSTAR and NFFF's work related to EGH, FLSI 6.

This project explores measures that can be taken to support efficient and efficacious incorporation of revisions made to Chapter 7 of NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, prescribing incorporation of behavioral health screening measures into medical evaluations of both entrants and incumbents. FRCE's R2P work in behavioral health has resulted in a variety of platforms and tools to assist firefighters, their families, and their departments in establishing accessible, affordable behavioral health assistance programs. We have, in concert with our longtime partners at the Center for Firefighter Behavioral Health at the Medical University of South Carolina, constructed and expanded platforms that provide tools and training to support behavioral health providers in their work with first responder populations; these have now reached more than 12,000 professionals with evidence-based instruments and techniques specifically adapted for first responder populations. Our evidence supported and systematically evaluated the SFA initiative frequency of occupational illnesses (see discussion below) suggesting that few firefighters will escape work-related injury during their firefighting career and that many—possibly most—are likely to experience multiple episodes. The increasing research attention to occupationally influenced engendered illnesses likewise suggests that exposures accumulated over the course of a firefighting career may increase an individual's propensity to manifest a variety of conditions, many of which can hold life-altering or even life-ending implications. While much attention is rightfully given to prevention, surprisingly little systematic work has been created regarding how best to help fire departments, firefighters, medical and allied health care providers, families and other supporters manage the experience, navigate the often-complex avenues of care, and find their way to a productive resolution.

This session, underwritten by a Fire Prevention and Safety grant from the Assistance to Firefighters Grants program (AFG), assembled a diverse panel of professionals versed in various elements of firefighter occupational health and wellness to outline the scope of the problem from the perspective of firefighters, their departments involved, providers engaged in the delivery of occupational health services to firefighters, and others who play critical roles in firefighters' lives and work. From there, a number of recommendations are entered to help support the incorporation of behavioral health screening into medical evaluation protocols.

EVOLUTION OF FIREFIGHTER MEDICAL EVALUATIONS

Firefighting is an inherently dangerous, highly physical activity. NFPA's *Standard on Comprehensive Occupational Medical Program for Fire Departments* (NFPA Standard 1582, 2022) identifies fourteen essential tasks critical to the occupation, each of which involves exposure or exertion sufficient to result in illness or injury. The standard also notes that many of these will still result in compromise even if performed properly with compliant use of appropriate personal protective equipment (PPE). It should not be surprising then, that



the rate of occupational injury and illness is high across settings and activities. Identification, prevention, moderation, and/or mitigation of risk factors disposing of one toward occupationally related illness or injury is therefore of strong interest to firefighters, their families, their departments, and the communities they serve.

The American fire service has placed an increasingly strong focus on occupational health issues over the past three decades. Beginning with a more or less cursory nod in the 1974 Edition of NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, issues surrounding occupational health gained a much-sharpened focus with the promulgation

in 1987 of NFPA 1500, *Standard on Fire Department Occupational Health and Safety*. The first edition of NFPA 1582, *Standard on Medical Requirements for Fire Fighters*, was issued in 1992 and became the *Standard on Medical Requirements for Fire Fighter and Information for Fire Department Physicians* in 2000 and the *Standard on Comprehensive Occupational Medical Program for Fire Departments* with the 2003 edition. NFPA 1582 has been an essential element of the IAFF/IAFC *Joint Labor Management Wellness Fitness Initiative* since its inception.

While the entrant medical evaluation is focused on diagnosing conditions that might impair or inhibit performance, especially conditions that would disqualify a candidate from safely or effectively performing any of the essential tasks, it also provides a baseline against which the firefighters evolving health status may be evaluated throughout his or her career. It also identifies conditions that, while not themselves preemptively disqualifying, require monitoring and/or accommodations to perform safely as a firefighter. The annual medical

evaluation of incumbent members provides an ongoing longitudinal assessment of changes in a firefighter's health status as he or she progresses through that career. Emerging conditions can be promptly identified and referred for appropriate intervention, often saving a career and frequently a life. Perhaps of greatest importance is the capacity to apprise each firefighter at least once yearly regarding risks identified and actions, he or she should consider addressing them and, to the extent possible, hold them at bay. The overall intention is not to disqualify but to provide the best support possible to maintain each firefighter's capacity to continue in the career they love.

Much of injury and disease prevention is based on psychological and behavioral factors. Behavioral health risk factors, including, but not limited, to those identified in NFPA 1582 revisions, have been shown to exert a significant influence on a vast variety of health outcomes (Coups, Gaba, & Orleans, 2004; Thomas *et al.*, 2020). Indeed, the US Preventive Services Task Force (USPSTF) developed guidelines on behavioral counseling as a key element in disease prevention and recently released new recommendations regarding behavioral counseling in the prevention of cardiovascular disease—the leading cause of fireground death (Patnode *et al.*, 2022). Across risk factors, it has been demonstrated that primary care attention to preventive counseling regarding lifestyle and behavior changes can increase the odds of meaningful behavior change at least two-fold and sometimes as much as four-fold (Bartlem *et al.*, 2019). A substantial proportion of fireground deaths in more than a decade of the National Institute of Safety and Health (NIOSH) investigations included behaviorally based actions and decisions as causal contributors (often as major factors) (Hard *et al.*, 2019; Kunadharaju, Smith, & DeJoy, 2011). Psychological consequences of occupational illness or injury on careers and lifestyles are well recognized and may be compounded even further with firefighting where, for example, active membership has been suggested to play a protective factor with respect to suicide, but career separation may present a reversal of that protective role and even present an exacerbation of risk (Gist, Taylor, Watson, & Leto, 2019).



FRCE has been among the proponents seeking the inclusion of basic behavioral health screening into both entrant and incumbent medical evaluations. The most recent revision of NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments* (2022), indeed included provisions related to this objective, calling for screening respecting four major behavioral health risks (posttraumatic stress disorder (PTSD), major depressive disorder, active suicidality, and substance use disorder). This project convened representatives with established expertise related to fire service medical evaluations to explore measures that might be needed to support efficient and efficacious incorporation of those revisions. Objectives for the session included:

- Scoping of the issue and its various facets.
- Needs assessment and identification of lines of exploration and inquiry in need of further development.
- Identification of initial pathways for awareness of need and integration with other elements and resources (to specifically include behavioral health resources); and
- Preliminary design of resources to support full integration of behavioral health concerns into occupational health, treatment, and rehabilitation programs.

The working group was conducted in Memphis, Tennessee, over two days with the process facilitated by Dr Richard Gist, Deputy Director of the Kansas City (Missouri) Fire Department and long-time advisor and consultant to NFFF and FRCE.

LINKAGE TO FRCE PRIORITY AREAS

The 16 Firefighter Life Safety Initiatives that form the foundation for EGH were the product of a groundbreaking national symposium held March 10-11, 2004, in Tampa. Two days of intensive exploration involving a wide range of fire service leaders resulted in the identification of 16 fundamental principles that demanded aggressive, comprehensive address if firefighter illnesses, injuries, and fatalities were to be meaningfully reduced in the following decade. Once these were identified, the NFFF began an intensive program of building coalitions, marshaling resources, and shaping focus around the implementation of these landmark proposals.

Three years later, more than two hundred fire service representatives convened again in Novato, California to flesh out each of the 16 initiatives and offer specific recommendations for their implementation. Experts in specific areas were commissioned to produce a white paper for each FLSI that would summarize current information and serve as the linchpin for focused discussion. A ten-year reevaluation of the 16 FLSIs, dubbed “Tampa2” to acknowledge the program’s origins, revisited the overall EGH effort and the progress of each FLSI. A number of issues focused on the prevention of accidents and injuries on the fireground and elsewhere in the workplace; still, others focused on issues like safety culture, technology development, research support, accountability, apparatus design, and near-miss investigations. One key theme to emerge was the need for much greater integration across all health, wellness, and safety programming at the department level, and for this to be reflected in the standards relating to these various programs and initiatives.

FRCE, along with other fire service organizations, has focused stringent attention on expanding the implementation of mandatory medical evaluations for entrant firefighters and instituting annual medical examinations for incumbents. NFPA 1582, *Standard on Medical Requirements for Fire Fighters*, was first issued in 1992. Over the course of its revision and evolution, it has come to provide a comprehensive guideline for the basic components of occupational medical programming carefully tied to fourteen core performance elements central to functioning as a firefighter. Proposed NFPA 1580, a consolidation of standards relating to medical evaluations, fitness, and wellness programs (NFPA 1581, NFPA 1582, NFPA 1583, NFPA 1584), offers a forthcoming opportunity to consolidate and emphasize the functional integration of health and wellness programs and establishing medical evaluations as the essential linchpin in that effort.

SCOPING THE PROBLEM

When tackling an issue with many dimensions and little in the way of an existing, systematic body of information on which to rely, the preliminary steps center around *scoping*. This phase of project development gathers available inputs, synthesizes these into a preliminary schematic, and identifies specific objectives and steps to begin work toward solutions. Scoping processes may employ a variety of input approaches including literature scans, surveys, expert consensus panels, or essentially any appropriate combination of such methods. Scoping reviews are used to identify questions, organize information, propose strategies, and set the stage for more focused actions (Sucharew & Macaluso, 2019).

For this project, the scoping phase utilized a sample of subject matter experts holding knowledge and experience in domains known to be critical to the issues under examination: fire department policymakers, fire service insurers, health care providers, behavioral health specialists, peer support managers, case management personnel, and health researchers. The process from there followed a systematic but open-ended pathway beginning with a basic overview of goals, flowing then into a discussion of known issues, current approaches, observed or anticipated obstacles, and possible sources for further input and examples. The final phase proposed possible projects to address key issues from the perspectives of fire departments, health care providers, and firefighters.

Once projects are selected for development, the R2P process for their development follows a more or less standard model. It is, at its essence, rather simple:

1. Establish the best empirical information to form the basis for proposed solutions (get it right).
2. Build translation models that make the proposed solution easy and desirable for the end users to utilize (make it easy).
3. Get the products out to end users in ways that effectively reach the right targets and compel them to act (get it out there).
4. Evaluate, reassess, refine, and redeploy as the products are put to use (keep it working).

The scoping began by providing an overview of the specific revisions addressing behavioral health screening (Sections 7.7.26.1 through 7.7.26.4.3) and pertinent elements from Annex A providing explanatory guidance and examples of relevant instruments. The revisions, for reference, are summarized below:

7.7.26.1 The fire department physician or qualified healthcare provider shall, in advance of or during the annual physical, provide behavioral health screening for posttraumatic stress disorder (PTSD), major depressive disorder, active suicidality, and substance use disorder.

7.7.26.1.1 Prior to conducting a screening, the fire department physician or qualified healthcare provider shall provide the member with a written explanation of the purpose of behavioral health screening.

7.7.26.1.2 The behavioral health screening explanation shall state behavioral health screening is not intended to provide a diagnosis but to identify symptoms that might indicate a behavioral health risk and warrant further evaluation.

7.7.26.1.3 The behavioral health screening explanation shall state that screening results will be kept strictly confidential.

7.7.26.1.4 Behavioral health screening results shall not be used to remove a member from duty unless the member displays an imminent threat to the physical safety of self or others.

7.7.26.3.2 Screening results shall be reviewed and interpreted by the department physician or qualified healthcare professional prior to or during the annual physical exam.

7.7.26.4.1 An incumbent firefighter who screens positively for PTSD, major depressive disorder, active suicidality, or substance use disorder shall receive a referral to a qualified behavioral healthcare provider.

7.7.26.4.2 A fire department shall provide the fire department physician or qualified healthcare provider conducting the annual screening with a referral list of three preferred behavioral health providers that were updated in the last six months.

7.7.26.4.3 An incumbent firefighter who displays a threat to their physical safety or the safety of others at the time of their annual examination shall be referred to a qualified behavioral healthcare provider or facility for an emergency psychiatric evaluation.

Using these provisions as a framework, the work group proceeded to consider the elements of the standard in the context of established parameters for screening programs.

PARAMETERS FOR SCREENING INSTRUMENTS

The first order of business follows an initial overview centered on reviewing the basic purposes and parameters regarding screening, particularly in the context of primary care encounters. Screening protocols exist for a wide variety of conditions but, in many cases, the utility of prophylactic screening for a particular condition may be subject to debate (Mulvaney-Day *et al.*, 2018). Wilson & Jungner (1968) presented ten basic principles that have served as the bedrock for such discussions for more than a half-century. Since that time, more than forty published reports have proposed variations. Dobrow *et al.* (2018) conducted a systematic review and analysis of these constructions, arriving at twelve core principles they deemed as clearly supported across the systems proposed. Those consensus principles are reproduced in the following (Table 2 in the cited report):

Dobrow *et al.* divide their distillation of principles into three major groupings or domains:

1. *Principles respecting the disease or condition for which screening is proposed:*
These include an important health problem with an established understanding of its epidemiology and etiology; a soundly described natural history that includes a detectable preclinical phase; and a defined, identifiable, reachable, and receptive target population to be screened.
2. *Principles respecting the screening instrument(s) or procedure(s):* These include instrumentation with acceptable sensitivity, specificity, positive predictive value, and negative predictive value (see discussion below); capacity to clearly and meaningfully interpret results and take appropriate action; and an agreed course of action for follow up, referral, and throughput regarding treatment and intervention where a positive screen is recorded.
3. *Principles respecting the program and systems undergirding the screening enterprise:*
This critical and too often a less developed set of principles works to ensure that infrastructure exists to support both the screening process itself and actions required to manage findings; that the program is well coordinated and integrated with other needed resources to act on findings; that the program is clinically, socially, and ethically acceptable to patients, providers, and stakeholders; that potential benefits and harms are clearly specified and adequately balanced; that it is not cost prohibitive relative to the benefit accrued; and that the program is monitored by appropriate quality assurance measures.

The workgroup first reviewed the four conditions identified for screening under the revised NFPA 1582 rubrics to determine whether these were appropriate conditions for prophylactic screening. The four conditions noted are each well-established as occupational risks for firefighters. Each has been researched with respect to epidemiology, incidence, and impact on firefighter populations, and each has a predictable natural history. Inclusion within the mandated NFPA 1582 medical evaluations establishes a clear target population and a pathway by which they may be accessed. Generally speaking, this first set of principles is readily satisfied.

The second cluster of principles, respecting the psychometric properties of potential screening instruments, demanded a great deal more exploration. The group approached this by looking specifically at instruments proffered in the Annex as suitable for screening for the conditions addressed in the standard. Particular attention was given to available published data regarding key psychometric properties, specifically:

1. *Sensitivity*: Likelihood that the screening instrument will, in fact, identify a true positive case (limiting false positives).
2. *Specificity*: Capacity to distinguish the condition for which screening is sought from other conditions (essentially propensity toward false positive screens).
3. *Positive Predictive Value (PPV)*: Confidence that a positive finding will indeed be a confirmed clinical case.
4. *Negative Predictive Value (NPV)*: Confidence that a negative finding will not prove to be a positive case upon further examination.
5. *Screening Efficiency*: Percentage of screened cases correctly classified by the screening instrument or protocol.

The following instruments were specifically discussed and evaluated:

1. *Primary Care PTSD Screen (PC PTSD-5)*: This is a five-item, dichotomous response (yes/no) self-report designed to identify probable PTSD in primary care populations. Its primary validation (Prins *et al.*, 2016) was done with a convenience sample of 398 veterans (mean age approximately 63 years; overwhelmingly male), with follow-up involving 396 veterans from two VA medical centers (mean age 61 years; 84 percent male) showing similar properties but suggesting a higher cut score (4/5) for a positive screen (Bovin *et al.*, 2021).

Strengths: Straightforward; easily self-administered; scored by a simple count of positive responses; positive cases referred for detailed clinical assessment. Screening efficiency 89 percent.

Weaknesses: Psychometrics (other than specificity and NPV at the suggested cut score of 4/5 positive) are adequate, though not uncommonly strong (Sensitivity .78; PPV .65). Not validated in first responder populations; not studied as an occupational health instrument.

2. *PTSD Check List for DSM 5 (PCL 5):* This is a 20-item, self-report questionnaire developed under the auspices of the National Center for PTSD of the US Veterans Administration (Blevins *et al.*, 2015) for the purpose of detecting PTSD in military populations. Responses are entered according to a five-point Likert scale based on symptom frequency in the preceding month. Its most robust psychometric analysis (Wortmann *et al.*, 2016) was conducted with a sample of 912 military or veteran personnel seeking PTSD treatment in garrison (mean age 33 years; average length of service over 10 years; 92 percent male).

Strengths: Well-studied, widely utilized self-report instrument; widely used in research.

Weaknesses: Psychometrics adequate though not uncommonly strong (Sensitivity .88; specificity .69; PPV .81; NPV .78; efficiency .80). Scoring requires limited training. Not validated in first responder populations; not studied as an occupational health instrument.

3. *Patient Health Questionnaire (PHQ-9):* This is a nine-item, self-report designed to screen primary care patients for depression. Responses are entered along a four-point Likert scale based on symptom frequency in the preceding two weeks. Scoring requires limited training. Originally developed under the sponsorship of Pfizer Pharmaceuticals, it has been widely distributed in the primary care community and is well recognized and understood. Numerous studies have examined utility in various populations and settings and meta-analyses are available for core metrics (Levis *et al.*, 2019; Moriarty *et al.*, 2016). While the PHQ has been used in many studies related to firefighter behavioral health, it has not been validated as a screening instrument in that population, though it has been validated for occupational health use more broadly (Volker *et al.*, 2016).

Strengths: Well-studied, widely utilized self-report instrument; widely used in research. Extensive validation information. Decent sensitivity (.88) and specificity (.85); strong NPV (> .96), indicating excellent performance in ruling out clinical depression.

Weaknesses: Positive Predictive Value (PPV) is somewhat low (.52), indicating that approximately half of the positive screens are ultimately false positives on full assessment.

4. *Columbia Suicide Severity Rating Scale (CSSRS):* This is a six-item structured interview posing dichotomous queries regarding the presence of certain symptoms or actions in the preceding month. It is designed to assess the need for a more detailed assessment.

Strengths: There are few screening instruments for suicidality that are well validated and the performance of most is limited at best. CSSRS enjoys more utilization and hence more study than most (see, for example, Matarazzo *et al.*, 2019; Posner *et al.*, 2011). Decent specificity (.86) and excellent NPV (.98).

Weaknesses: Not created for self-administration. Specificity is relatively low (.49), indicating that half of the positive screens will be driven by some variable other than suicidality. PPV is extremely low (.11), indicating that nearly 90 percent of positive screens will not predict suicidality. No indication was found of validation in first responder or occupational health settings.

5. *CAGE Substance Abuse Screening Tool:* This is a brief (4-item), loosely structured screening instrument in common usage since 1984. It is used extensively in primary and ambulatory care and has been utilized in studies of substance abuse among firefighters.

Strengths: Widely utilized, easily interpreted. Validity data is available across a range of populations and settings. Strong NPV (> .90)

Weaknesses: Very sensitive to population and settings. In a systematic review (Dhalla & Kopec, 2006), overall sensitivity was moderate (.71) but specificity strong (.90) and PPV adequate (.82). Nonetheless, psychometrics varied greatly across studies, with sensitivity in college clinics (Aertgeerts *et al.*, 2016) low at .42 and PPV in that setting merely .36. Gender also leads to strong variations.

6. *Alcohol Use Disorder Identification Test (AUDIT)*: This is another long-standing, widely utilized, simple screen for problem drinking behaviors. It has been studied in many populations, including police officers, and exists in both longer and shortened versions. Specificity and sensitivity have varied significantly between genders and across different populations and locales, hence application requires careful assessment of appropriate cut scores in specific populations and settings. Specific training is advised to interpret properly.

Strengths: Widely utilized, readily recognizable, and established in primary and occupational settings. Excellent NPV (.97 in a recent study; see Lang, Monteiro, & Rehm, 2019); acceptable sensitivity and specificity if proper cut points were selected (.86 and .89 respectively overall in Bradley *et al.*, 2007, review though rather different for men (.94 and .67) versus women (.87 and .82).

Weaknesses: Very sensitive to population and settings. Lang, Monteiro, & Rehm (2019) noted a PPV of only .42 overall. Proper selection of cut scores is essential in each population.

7. *Drug Abuse Screening Test (DAST-10)*: Yet another long-standing screening device in common usage for an extended time. This is a ten-item, dichotomous choice, self-report inventory scored by totaling the number of items endorsed. Responses endorse or deny the occurrence of each listed behavior within the preceding twelve months. Introduced in 1984, it has, like other described substance screen tools, seen multiple iterations, reducing its working content from an initial twenty-eight items without appreciable loss of psychometric value. It has been tested in at least one employment setting, though study quality limits generalizations; no evidence was located regarding specific use or performance in firefighter populations.

Strengths: Widely recognized and use screening tools with excellent psychometric properties (Villalobos-Gallegos *et al.*, 2015, reported sensitivity .98, specificity .65, PPV .85, NPV.93, screening efficiency 87 percent). Simple scoring and interpretation.

Weaknesses: Items noted as obvious and self-announcing, raising concerns respecting the accuracy of self-reporting, particularly in substance abuse categories characterized by denial and misrepresentation of severity or impact.

Several key issues emerged from this examination of suggested instrumentation:

1. The instruments suggested would together require to add utilization of *at least* four different instruments, which would hold differing parameters for administration, scoring, interpretation, and reporting/presentation. This could potentially add a substantive burden to the already demanding protocols of the NFPA 1582 medical evaluations. Encounter time tends to be limited, and efficiency is an important consideration for examiners.
2. The standard's stipulations regarding self-administration and individualized reporting add additional burdens with respect to time, logistics, and expense. These are already challenging for the vast majority of American fire departments, where the expense and logistical challenges of the rather elaborate NFPA 1582 protocols are already demanding and often difficult to meet.
3. Some existing protocols have worked to address these concerns, but these are proprietary solutions and present challenges of their own. Nonproprietary solutions not currently available will likely be required to attain the impact sought by the industry.
4. Any such approaches will need to be validated for firefighter populations and for application in that specific occupational health context. Currently suggested options uniformly lack this, even though validation research on at least several suggests that this may well be a very large confounding variable if not proactively addressed.
5. Integrating these with other screening protocols included in the NFPA 1582 rubrics will need to be addressed to facilitate a more seamless experience for both providers and consumers.
6. Work on this particular initiative should be treated as a subset of overall work on integrated health and wellness programming, and especially as an element of a total, comprehensive package engineered for maximal access, affordability, and utility for the American fire service—including those smaller one and two station agencies that comprise 85 percent of the industry.

PROGRAM AND SYSTEM ISSUES

This element became the principal focus for much of the working sessions. The factors that must be considered and evaluated are many; they are broad reaching and complex, and too often go unconsidered or considered only in passing. Yet it is precisely these matters that will determine whether a screening initiative succeeds in reaching its target populations, engaging them in identifying and addressing specific risks, and evoking the behavioral and lifestyle changes needed to mitigate those risks. Considerations included:

1. *Screening Program Infrastructure:* On a surface level, this may seem that it is readily addressed by the standard, to wit: screening takes place in the context of the entrant and annual medical examinations, which are also, according to standards, embedded within the established structure of a comprehensive health, wellness, and safety program. While this is precisely what the standard should prescribe, very few departments have the wherewithal—or in too many cases, even the inclination—to divert scarce resources to what is often perceived as somewhat of a luxury. This is understandable and it absolutely must be addressed if the initiative is to produce the impact sought.

The NFPA 1582 medical evaluation is a costly endeavor. A fully compliant, comprehensive medical evaluation will cost, at a minimum, several hundred dollars per employee; in many places and in a number of situations, its cost surpasses the \$1000-\$1500 mark. Bearing in mind that NFPA standards are not mandatory and full compliance is not required in any truly compelling way (unless, for example, a stipulation of collective bargaining agreements or local ordinances), it is difficult for smaller agencies—especially those with limited tax support—to prioritize these over demands such as operational equipment, training, and funding service delivery. Indeed, a great deal of FRCE effort is devoted to proposing and evaluating ways to make this critical personnel component accessible, affordable, and sustainable.

2. *Screening Program Coordination and Integration:* There is an old adage known to almost every public health practitioner: Don't screen for what you can't treat (cf. Herman, 2006; Nielsen & Long, 1999). Here again, standards prescribe and assume that medical evaluations, and hence screening included, take place as an embedded element of a comprehensive health, wellness, and safety program. Here again, this rarely happens at present, for the same reasons outlined above.

This is another area where FRCE works diligently to help the industry devise strategies to structure and implement programming in cost-efficient, manageable ways that can be used by agencies of any size, but especially by those whose resources are limited at best. Several working group reports have been produced that contain action plans touching on this increasingly critical but, at present, rarely surmountable limitation. The medical evaluation component should become the lynchpin around which such programming is constructed, and the findings of these annual assessments should direct each employee's utilization and priorities across that year for staying healthy, fit, and safe.

Screening programs discussed here must also integrate with a strong and accessible behavioral health assistance program (BHAP). While most departments now provide access to an employee assistance program, these are most often externally contracted, not particularly well integrated, and frequently grossly underutilized. Firefighters have often complained that providers are not prepared for the issues they face or the contexts of their work. Other FRCE efforts have focused on accessible and affordable pathways to educate EAP providers to build cultural competence, provide accessible no-cost training in evidence-based treatments, and provide apps and materials to help firefighters, providers, departments, and families become partners in protecting a firefighter's wellbeing. Much work awaits here as well.

3. *Screening Program Acceptability and Ethics*: One driving factor in evaluating proposed instruments in such detail is to ensure that the product ultimately delivered meets these standards for efficacy, utility, acceptability, and accountable utilization. The items discussed above drive directly into critical aspects: validation for and applicability to setting, occupation, and climate; demonstrated efficacy and impact; meaningful contribution to the health, wellness, and care of screening subjects, and fully informed consent. Similar concerns must be addressed in all aspects of health and wellness programming to ensure that the entire program systematically and responsibly pursues the goal of minimizing to the fullest extent feasible and mitigating wherever possible the harmful impacts of firefighting on the life trajectories of those who step forward to serve.
4. *Screening Program Benefits and Harms*: *Primum non nocere*—first, do no harm. There has been an assumption in some quarters that behavioral health screening should present minimal risk and even that nonpharmaceutical mental health interventions hold limited risk as well. Such assumptions have proven dangerously naïve. Lillienfeld (2007) cataloged a list of behavioral health interventions that had some not just questionable

efficacy but actual evidence of harm. Leading his list was critical incident stress debriefing, which had become an almost universal tool within the American fire service and beyond before extensive research began to demonstrate that it held limited, if any, efficacy as a preventive maneuver and showed evidence of differential harm in several subgroups to which it was routinely applied.

This is compounded in occupational settings where various findings hold the potential to result in restriction of duty or even separation. Hoffman (2023), for example, reported that two-thirds of both paid and military pilots acknowledged not reporting key medical information for fear of duty restriction. Accordingly, many firefighters have been reluctant to accurately report their symptom experiences. Since the majority of the screening tools proposed in the NFPA 1582, Annex A depend directly on accurate reporting of recent symptoms or behaviors, this can present a challenge to screening validity. Accordingly, the presentation of information and the handling of follow-through becomes definitive elements of program development.

5. *Economic Evaluation of Screening Program*: This critical consideration is too often overlooked. An effective screening program must deliver a yield in terms of early diagnosis and intervention sufficient to justify all the expenses required to operate and maintain it. Does it reduce lost years? Does it save lives? What cost savings accrue from these reductions? How do those compare to the cost of operating the screening program?

This is also strongly affected by (a) throughput efficiency from the screening activities, and (b) efficacy of the treatment or intervention that results. If the screening process identifies potential intervention needs but the patient is not properly and expediently referred, and/or if the intervention resulting is not efficacious in addressing the condition, not only is there no return on the screening investment but there is also lost opportunity costs.

6. *Screening Program Quality and Performance Management*: Ongoing, consistent quality assurance activity is essential to solid service delivery. This includes a wide range of evaluations including input, process, output, outcome, and impact assessment. Absent an assertive quality assurance program, limitations may be overlooked, opportunities lost, and necessary refinements delayed.

PRODUCTS OF DELIBERATION

Armed with a detailed overview of the matters outlined above, work group deliberations began by generating an outline of initial considerations. These included:

- *Complexity and demand of screening package:* Multiple screening instruments, even if each is quick and simple, can become tedious. Can the screening package be streamlined and presented as a single, integrated instrument that requires only one set of instructions? Can it be easily scored using a single rubric across components? Can it be readily interpreted on that basis?
- *Probable issues with engagement:* Firefighters have sometimes treated medical evaluations as a “one day a year” thing of which they are semi-passive recipients. How can we reframe the enterprise to promote ongoing, active engagement in health and wellness?
- *Probability of accurate self-reporting:* Virtually all behavioral health screening approaches involve self-report. Self-reporting is almost universally seen as a limitation and becomes a critical one where job retention is perceived to be at stake. How can we mitigate that limitation?
- *How to frame within the context of annual medical evaluation:* Health and wellness programs have typically found themselves siloed by the specific elements each addresses. The relationship to one another, while often discussed and declared, is often functionally difficult to see. How do we integrate behavioral health—typically treated as a carve-out—and medical evaluations into a seamless, ongoing commitment to individual action?
- *How to present screening results:* What sort of feedback should be delivered back to the individual? In what form should it be provided? How can we best ensure that all elements are communicated as integrated elements of the individual’s total health and wellness snapshot?
- *Who should present and review:* Findings are often communicated either by the examiner, where their time available for detailed discussion is limited, or delivered in the form of a written summary (often generated by an EMR platform or similar computerized reporting). What might be better ways to communicate findings in order to promote their role in guiding each individual’s health and wellness activity?

- *How to integrate into health behavior strategies:* To gain the greatest impact and effect, behavioral health must be reframed from a separate but related issue into an essential element interwoven throughout an individual’s health and wellness strategies. How do we facilitate that transformation?
- *How to provide follow-up and support:* The annual medical evaluation, including behavioral health screens, cannot be a “one-off” interaction. It is essential that it be used as an integral element in a comprehensive health and wellness program, both to evaluate progress and status and to identify priorities and actions for the coming year. To accomplish this, it must feed into health advocacy, member support, and positive coaching from company officers, program personnel, indicated providers, and the organization as a whole. Organizational support cannot be simply policy and pep talks—it must include program management, funding, resources, relationships with external consultants and providers where indicated, and enduring continuity and commitment.
- *How to evaluate efficacy and impact:* This is another critical element of any programming that is often overlooked and, even when present, is typically underdeveloped. A broader quality assurance effort looks not only at efficacy and impact but also at how well the program is functioning in reaching firefighters within the organization, engaging them in active participation, educating them regarding all aspects and their relevance to them as individuals, and maintaining involvement and commitment over time.

The working group next explored the foundational elements required to design and maintain a successful, integrated program. These were agreed to extend beyond behavioral health alone, beyond the medical evaluations themselves, and to include the organization’s entire vision regarding firefighter health and wellness. These consensus points evolved from that discussion:

- Participation is much stronger where the values that drive the program effort clearly align with the values that drive the participants. Value emphasis should be placed on supporting and maintaining the health of each firefighter from entry to (and through) retirement—a longitudinal, developmental perspective.
- The annual medical evaluation (which is, by design and intent, far more than a routine physical examination) should provide an annual snapshot for use in assisting each firefighter to maintain and enhance personal health and wellness and to identify and address issues and concerns needing attention.

- Behavioral health concerns are one element (albeit a crucial one) in a total picture of the firefighter’s health that considers a full range of awareness and actions. These elements must be comprehensive and complementary, woven into an integrated set of approaches and actions.
- Emphasis is on coaching: assessment, information, actions, incentives, and encouragement, all focused on helping each firefighter achieve and maintain his or her health and wellness goals.
- Focus should be consistently kept on how to keep each firefighter in the fold rather than finding the factors by which that firefighter might be excluded or expelled.
- *An annual expression of our commitment to you and your health rather than an annual hurdle you must jump over to remain in the race.*

Attention then focused more squarely on the examinations themselves, seeking consensus regarding the framework which should surround the entrant medical evaluation and then the same considerations regarding the annual medical evaluation:

Entrant Medical Evaluation:

- Ensures a baseline health status adequate to learn and execute essential job tasks.
- Function should be reframed away from a “weed out” tool and toward an overall health assessment to provide the basis for lifetime health maintenance.
- Trust in relationships and processes respecting health and wellness must begin here by setting the focus strongly and squarely on assessment, information, actions, incentives, and encouragement.
- Entrant evaluation should not stop with a simple “pass/fail” determination—it must extend into shaping and socialization of an enduring health and fitness mindset.
- Should deliver a baseline health and fitness plan to be revisited annually thereafter.
- Should provide the foundation for a workplace/workforce joint commitment to ensuring every firefighter will always have the information, resources, and support to actualize their aspirations and reap their rewards.
- *Starting strong and growing with the job.*

Annual Medical Evaluation for Incumbents:

- Must represent a thorough medical and fitness assessment by a physician or other qualified provider (e.g., ARNP, PA) according to NFPA 1582 standards.
- Information from this process should be used to inform an annual update of each firefighter's health maintenance and fitness recommendations.
- Behavioral health screening is one element of this total health, wellness, and fitness picture and is shared with each firefighter *in that overall context* to inform that firefighter's personal wellness plan for the year.
- Coaching support should remain focused on assessment, information, actions, incentives, and encouragement in support of the firefighter's annual wellness plan.
- The overall focus of the program package should remain expressly on keeping each firefighter healthy and fit throughout their life and career cycles.
- Support efforts should include opportunities for follow-up and encouragement beyond the evaluation context to enable the greatest possible efficacy year to year.
- *Keeping you healthy, keeping you safe, keeping you doing what you love.*

As its final exercise, the working group developed a summary set of broad caveats to guide future efforts in this arena:

- Firefighter health, wellness, and fitness demand a longitudinal commitment and a robust continuum of care and resources to facilitate the implementation of each firefighter's personal annual plan.
- Medical evaluation elements need to be embedded within a larger program of health and fitness supports that include value enrichment and education as well as assessment and coaching.
- These efforts must be scalable and adaptable across the wide spectrum of US communities and fire service delivery systems, including locations where resources may be limited.
- Interfaces and interactions between occupational care of the firefighter, primary care of the individual, and specialty care, when indicated, need to be planned, purposeful, and patient-centered.

- These relationships need to be established within defined systems and structures to ensure consistency and sustainability over time and across individuals.
- Multiple levels of peer support are essential to actualizing the larger objective of fostering a supportive, productive workplace environment that works to ensure the realization of each firefighter's values and the rewards they seek from their profession and career.
- Structured interfaces between formal support systems and peer support elements are essential to program success and warrant enhanced systematic development.
- Innovative roles such as health coaches should be considered to provide the translation from medical evaluation and actions recommendation into an active, achievable personal wellness plan, and to provide ongoing, personalized support to each firefighter in achieving their personal health and wellness goals.

Health coaches are an emerging role in the healthcare industry for which specific education programs and a certification system have emerged over the last decade. Their role is described by their professional body (National Board for Health and Wellness Coaching) as:

Health & wellness coaches support clients in activating internal strengths and external resources to make sustainable and healthy lifestyle behavior changes. Health coaches use a client-centered approach wherein clients decide their goals, engage in self-discovery or active learning processes, and self-monitor behaviors to increase accountability, all within the context of an interpersonal relationship with a health coach. Whatever goal the client sets, the health coach ensures that they are supported until the desired outcome is achieved.

Health coaches are trained following a specified curriculum model, and those completing an approved program must then satisfy supervised experience requirements and pass a certification examination. Many will hold degrees in relevant areas prior to entering the certification program. More information, including approved training programs, may be found at www.nbhwc.org.

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PARTICIPANTS

Natalie Bowers, MSW, LMSW, Behavioral Health Coordinator, Frederick County MD Division of Fire and Rescue Services

Ken Desmond, Maine Director, National Volunteer Fire Council (NVFC)

Derrick Edwards, Ph.D., Tennessee Technological University

Richard Gist, Ph.D., Deputy Director/Principal Assistant to the Fire Chief Kansas City (Missouri) FD

Brittany Hollerbach, Ph.D., Deputy Director and Senior Scientist, Center for Fire, Rescue & EMS Health Research at the National Development & Research Institutes

Gary Krichbaum, Program Manager, First Responder Center for Excellence for Reducing Occupational Illness, Injuries, and Deaths, Inc.

Edward Mann, Director of Training and Education, Provident Insurance

John Oates, Chief Executive Officer, International Public Safety Data Institute

Vickie Taylor, LCSW, Director, Prince William Public Safety Resilience Center

Patricia Watson, Ph.D., Psychologist for the National Center for PTSD

Frank Leto, Captain (ret.) FDNY, Deputy Director Counseling Service Unit at New York City Fire Department

Todd LeDuc, Chief Strategy Officer (CSO) at Life Scan Wellness Centers Early Detection Disease Screening Public Safety Physicals, IAFC SHS Section Board Member

James Williams, Assistant Chief, Loudoun County Fire and Rescue, VA

Alisa Koval, MD, MPH, MHSA Wellness Physician, Dept. of Public Safety, City & County of Denver

Tom Coe, Fire Chief, Frederick County Division of Fire and Rescues, MD

John R. Niemiec, Deputy Director, IAFF, Occupational and Behavioral Health Services

Lauren Kosc, LCPC, Behavioral Health Program Clinical Coordinator, IAFF

Rich Marinucci, Executive Director, Fire Department Safety Officers Association

Marc Kruse Ph.D., Clinical Psychologist, City of Austin Fire Department and EMS, TX, Vice President of Research and Development, First Responder Behavioral Health

Andrea Wilkinson, MS, LAT, ATC, Health Scientist, National Firefighter Registry Division of Field Studies and Engineering Field Research Branch Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health



FIRST RESPONDER *Center for Excellence*


2130 Priest Bridge Drive
Suite 11
Crofton, MD 21114
443-302-2915
info@frcmail.org
firstrespondercenter.org

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