Seasonal Flu

Seasonal Flu Menu

Worker Guidance

Precautions for Healthcare Workers during Flu Season

This guidance provides baseline infection control procedures for seasonal flu. As new information about the current seasonal flu virus becomes available, this workplace guidance will be reevaluated and updated. Employers should ensure that they have the most up-to-date information when making decisions about their current operations and planning.

If you perform certain types of healthcare tasks for patients who may have the flu, then you may be at a higher risk of exposure to the seasonal flu virus at work. Workers who are at risk include those who perform direct patient care, aerosol-generating procedures, specimen analysis, and other patient support, like dietary and housekeeping services. These tasks can be performed in different settings such as inpatient and outpatient healthcare facilities, home healthcare settings, and health services facilities in schools, industrial workplaces, or correctional institutions. If you are one of these workers, then you need to take precautions at work to help reduce your risk of exposure to the flu virus. These precautions include using a combination of safe work practices and personal protective equipment (PPE) to reduce your exposures. The main strategies to prevent flu transmission include:

- Getting vaccinated
- Strictly following the steps for hand hygiene and cough etiquette, and encouraging coworkers, patients, and visitors to follow them also
- Staying home if you are ill and encouraging ill coworkers to obtain permission to leave work
- Strictly following infection control practices at work
- Using the gloves, gowns, surgical masks, and other protective equipment that your employer gives you and following the steps for putting them on (donning) and taking them off (doffing) correctly.

Pandemic flu remains a concern for workers and employers, especially those in the healthcare industry. A pandemic can occur at any time and can be mild, moderate, or severe. The pandemic in 2009 was considered by CDC to be mild but it still created challenges for employers and showed that many workplaces were not prepared. The precautions identified in this guidance give a baseline for infection control during a seasonal flu outbreak, but they may not be enough to protect workers during a pandemic. Your employer's pandemic flu plan should be based on a "worst-case" scenario – one in which the virus causes severe illness and death in larger numbers of people. Planning for the worst-case ensures that employers will have the right type of equipment and enough of it on hand to protect workers. It also ensures that employers have planned for additional control options so that they can pick the right combination for the specific pandemic flu virus. You may have additional planning considerations too. For example, you may need to think about what you'll do if schools and daycare facilities are closed. For additional information on pandemic flu planning, see OSHA's Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employers and CDC's healthcare planning resources.

Some Basic Precautions for All Workers

- **Get vaccinated!** Vaccination is the most important way to prevent the spread of the flu. For additional information about seasonal flu vaccine priorities, see Key Facts About Seasonal Flu Vaccine.
- **Stay at home if you are sick**. CDC recommends that workers who have a fever and respiratory symptoms stay at home until 24 hours after their fever ends (100 degrees Fahrenheit [37.8 degrees Celsius] or lower), without the use of medication. Not everyone who has the flu will have a fever. Other symptoms could include a runny nose, body aches, headache, tiredness, diarrhea, or vomiting. Note that CDC has special instructions for workers returning to work in areas with patients whose immune systems are severely weakened.
- **Keep frequently touched common surfaces (e.g., telephones, computer equipment, etc.) clean**.
- **Try not to use a coworker's phone, desk, office, computer, or other work tools and equipment**. If you must use a coworker's equipment, consider cleaning it first with a disinfectant.
- **Stay in shape. Eat a healthy diet. Get plenty of rest, exercise, and relaxation**.
- **If you are in a high risk category for flu complications (e.g., pregnant women, persons with asthma, etc.) talk with your employer about alternative work assignments**.
- **Participate in all training offered by your employer**. Make sure that you understand your exposure risk, your facility's policies and procedures for isolation precautions, use of workplace controls, work practices, and PPE protection during aerosol-generating procedures, and potential complications of the flu.

Additional Precautions for Healthcare Activities

Your employer should use a combination of the workplace engineering controls, work practices, and personal protective equipment listed below to reduce your exposure to the flu. Engineering controls are the most effective ways to reduce exposure because they involve changes to the workplace. Engineering controls should be used first. PPE is the least effective way to reduce exposure. PPE should be used only when close contact cannot be eliminated any other way. Follow your employer's procedures for implementing these controls and use the protective equipment provided to reduce your exposure risk at work.

Engineering Controls and other Workplace Control Measures

- Modify patient intake, triage, and other service areas to increase space between workers, coworkers, and patients (e.g., install sneeze guards or partitions).
- If available, use airborne infection isolation rooms (AIIRs), for aerosol-generating procedures and limit the number of people present during the procedure.
- Isolate and group flu patients according to your facility's procedures.
- Use the appropriate Biosafety Level, in laboratories, when handling specimens from flu patients.
- Limit patient transport. Conduct exams and procedures at the bedside, instead of transporting the patient to other areas of the facility. Place a surgical mask on the patient, if tolerated, when they are being transported out of the room.
- Use closed suctioning systems to suction a patient's airways and use high quality filters on the expiratory port of ventilators, when available.

Safe Work Practices

- Screen incoming patients and separate those with flu-like symptoms.
- Limit the staff entering patient isolation rooms to only those necessary for patient care.
- Restrict visits for patients in isolation.
- Use proper respiratory and cough etiquette and encourage hand washing by patients and visitors.
  - Cover your coughs and sneezes with a tissue or cough and sneeze into your upper sleeve(s). Dispose of tissues in a "no touch" wastebasket.
  - Clean your hands after coughing, sneezing, or blowing your nose.
  - Avoid touching your nose, mouth, and eyes.
- Wash your hands with soap and water for at least 20 seconds before and after contact with patients, after using PPE, and after touching contaminated surfaces; use an alcohol-based hand rub if soap and water are not available.
  - When using soap and water, rub soapy hands together for at least 20 seconds, rinse hands with water, and dry completely.
  - If soap and water are not available, use of an alcohol-based hand rub is helpful as an interim measure until hand washing is possible. When using an alcohol-based hand rub, apply liquid to palm of hand, cover all surfaces of the hands with the liquid, and rub hands together until dry.
- Check yourself for symptoms of the flu.
- Follow standard cleaning and disinfection methods.

Personal Protective Equipment (PPE)

- Use a surgical mask when entering a flu patient's room. A surgical mask is not a respirator. It will not protect you during aerosol-generating procedures, which may create very fine aerosol sprays. A surgical mask can only be used to protect workers from contact with the large droplets made by patients when they cough, sneeze, talk or breathe.
- Use a respirator during aerosol-generating procedures; a fit tested N95 disposable respirator or better is needed.
- Use gloves, gowns, and eye protection for any tasks that might cause contamination or create splashes.
- Put on and take off protective equipment in the correct order to prevent contamination.
    - CDC Posters
        - Sequence for Donning and Removing Personal Protective Equipment (PPE). Shows correct way to put on and take off PPE. The posters come in two different formats; a one-page format with smaller text and a two-page format with larger text.

Flu IQ

UNITED STATES
DEPARTMENT OF LABOR

Occupational Safety and Health Administration
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800-321-6742 (OSHA)
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www.OSHA.gov

OSHA® FactSheet

A2

Healthcare Workplaces Classified as Very High or High Exposure Risk for Pandemic Influenza

What to do to protect workers

If your workplace requires your workers to have contact with people who are known or suspected to be infected with the pandemic virus, there are important practices to reduce the risk of infection and to protect your workers.

Very high exposure risk occupations are those with high potential for exposure to known or suspected sources of pandemic influenza during specific medical or laboratory procedures:

- Healthcare workers performing aerosol-generating procedures on known or suspected pandemic patients.
- Healthcare or laboratory personnel collecting or handling specimens from known or suspected pandemic patients.

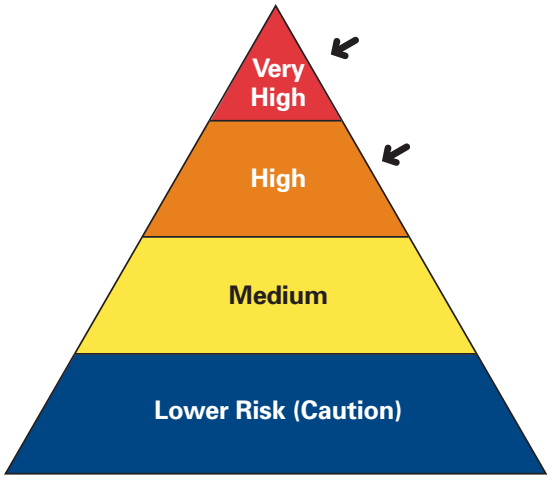
High exposure risk occupations are those with high potential for exposure to known or suspected sources of pandemic virus:

- Healthcare delivery and support staff exposed to known or suspected pandemic patients.
- Staff providing medical transport of known or suspected influenza patients in enclosed vehicles.
- Staff performing autopsies on known or suspected pandemic patients.

Engineering Controls

These types of controls involve making changes to the work environment to reduce work-related hazards.

- Healthcare facilities equipped with isolation rooms need to use them when performing aerosol-generating procedures for patients with known or suspected pandemic influenza.
- Only Biosafety Level 2 or 3 laboratory facilities (depending on the procedures performed) should process specimens from known or suspected pandemic patients.



Occupational Risk Pyramid for Pandemic Influenza

- Where possible, install physical barriers such as clear plastic sneeze guards in reception or intake areas.
- Review and increase housekeeping vigilance to control the spread of infectious agents through additional cleaning of contact surfaces, and through prompt and thorough waste disposal.

Administrative Controls

Healthcare facilities need to follow existing guidelines and facility standards of practice for identifying and isolating infected individuals and for protecting workers. Develop and implement policies that reduce exposures.

- Post signs requesting patients and family members to immediately report symptoms of respiratory illness on arrival at the facility and use disposable tissues to cover the nose and mouth when coughing.

Work Practices

Train workers in work practices such as hand hygiene, facility hygiene, and other infection control measures. For details see *Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employers* at www.osha.gov/Publications/3328-05-2007-English.html.

- Provide conveniently located masks, tissues and alcohol-based hand rubs for waiting areas and patient evaluation areas to reduce the spread of infection.

Personal Protective Equipment (PPE)

For those who work closely (within 6 feet) with people known or suspected to be infected with pandemic influenza:

- Use NIOSH-certified respirators that are N95 or higher. When both fluid protection (e.g., blood splashes) and respiratory protection are needed, use a "surgical N95" respirator that has been certified by NIOSH and cleared by the FDA.
- Consider NIOSH-certified elastomeric respirators (e.g., cartridge respirators) for essential workers who may have to decontaminate and reuse respirators in the event that there is a shortage of disposable respirators.
- Consider NIOSH-certified powered air-purifying respirators for essential workers who may have to decontaminate and reuse respirators, wear respirators for prolonged periods of time, be exposed to high-risk procedures, or work in high-risk environments. Loose-fitting hooded powered air-purifying respirators have the additional advantage of not requiring fit testing.
- Be fit tested and trained in the proper use and care of a respirator. (www.osha.gov/SLTC/respiratoryprotection/index.html).
- Use gloves made of latex, vinyl, nitrile, or other synthetic materials as appropriate, when there is contact with blood and other bodily fluids, including respiratory secretions.
- Wear an isolation gown when it is anticipated that soiling of clothes or uniform with blood or other bodily fluids, including respiratory secretions, may occur.
- Use eye and face protection if sprays or splatters of infectious material are likely. Goggles should be worn during the performance of aerosol-generating procedures. Use of a full face shield in front of a respirator may also prevent bulk contamination of the respirator.

Education and training material need to be easily understood and available in the appropriate language and literacy level for all workers. Employers must have a respiratory protection program that complies with OSHA's Respiratory Protection Standard at 29 CFR 1910.134, including worker fit testing, medical evaluation, and training in the proper use and care of a respirator.

For more information, please refer to OSHA Publication No. 3328, *Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employers*, which can be accessed at: www.osha.gov. Additional information can be found at www.pandemicflu.gov.

For more complete information:

OSHA® Occupational Safety and Health Administration

U.S. Department of Labor

www.osha.gov

(800) 321-OSHA

DTSEM 5/2009

A3

OSHA QUICK CARD™

Protect Yourself
Pandemic Flu
Respiratory Protection

Although influenza viruses are thought to be transmitted primarily by droplets through the air and contact with contaminated surfaces, it is possible that transmission could also occur by small particulates. Because of this, during a pandemic use a NIOSH-certified respirator for work involving close contact with people who are or may be ill with the pandemic virus. N95 respirators provide the minimum level of protection needed. A surgical mask is not a respirator.

Who needs to wear a respirator?

"Very High Exposure Risk" Workers with high potential exposure to known or suspected sources of pandemic virus during specific medical or laboratory procedures – for example, cough induction procedures, bronchoscopy, some dental procedures, invasive specimen collection, or manipulating lab cultures. These workers may need supplied-air or powered air-purifying respirators.

"High Exposure Risk" Workers with a high potential for exposure to known or suspected pandemic sources - for example, doctors, nurses, and other hospital staff who enter patients' rooms; and emergency responders transporting sick patients.

Other Workers whose work may not normally put them at Very High or High Exposure Risk but who, during a pandemic, are performing high-risk tasks such as isolating and quarantining people who are ill.

Respiratory Protection Program

Respirators must be used in the context of a comprehensive respiratory protection program, (see OSHA standard 29 CFR 1910.134 or www.osha.gov) which includes:

- Medical evaluation
- Training
- Fit testing
- Written program

For more complete information:

OSHA® Occupational Safety and Health Administration

U.S. Department of Labor
www.osha.gov (800) 321-OSHA

OSHA 3366-05N-09

Medical Offices and Clinics Pandemic Influenza Planning Checklist

Planning for pandemic influenza is critical for ensuring a sustainable healthcare response. The Department of Health and Human Services (HHS) and the Centers for Disease Control and Prevention (CDC) have developed the following checklist to help medical offices and ambulatory clinics assess and improve their preparedness for responding to pandemic influenza. This checklist is modeled after a pandemic preparedness checklist for hospitals and should be used in conjunction with guidance on healthcare preparedness planning in Supplement 3 of the HHS Pandemic Influenza Plan. Many of the issues included in the checklist are also relevant to other outpatient settings that provide episodic and chronic healthcare services (e.g., dental, podiatric, and chiropractic offices, ambulatory surgery centers, hemodialysis centers). Given the variety of healthcare settings, individual medical offices and clinics may need to adapt this checklist to meet their unique needs. Further information can be found at www.pandemicflu.gov.

This checklist identifies key areas for pandemic influenza planning. Medical offices and clinics can use this tool to identify the strengths and weaknesses of current planning efforts. Links to websites with information are provided throughout the document. However, actively seeking information that is available locally or at the state level will be necessary to complete the development of the plan. Also, for some elements of the plan (e.g., education and training programs), information may not be immediately available and it will be necessary to monitor selected websites for new and updated information.

1. Structure for planning and decision making.

Completed	In Progress	Not Started	
☐	☐	☐	Pandemic influenza has been incorporated into emergency management planning for the organization.
☐	☐	☐	A planning committee[1] has been created to specifically address pandemic influenza preparedness for the medical office or clinic.
☐	☐	☐	A person has been assigned responsibility for coordinating preparedness planning for the practice or organization (hereafter referred to as the pandemic influenza response coordinator). (Insert name, title and contact information) _____
☐	☐	☐	Members of the planning committee include the following: (Insert below or attach list with name, title and contact information for each) Administration: _____ Medical staff: _____ Nursing: _____ Reception personnel: _____ Environmental services (if applicable): _____ Clinic laboratory personnel (if applicable): _____ Other member(s): _____
☐	☐	☐	A point of contact (e.g., person assigned infection control responsibility for the organization or an outside consultant[2]) for questions/consultation on infection control measures to prevent transmission of pandemic influenza has been identified. (Insert name, title, and contact information) _____ _____

1. The committee could be very small (e.g., two or three staff members) or very large, depending on the size and needs of the organization.
2. Formal memorandum of understanding or contract may be needed if an outside consultant is used.

2. Development of a written pandemic influenza plan.

Completed	In Progress	Not Started	
❑	❑	❑	Copies of relevant sections of the Department of Health and Human Services Pandemic Influenza Plan have been obtained from www.hhs.gov/pandemicflu/plan; copies of available state pandemic plans also should be obtained.
❑	❑	❑	A written plan has been completed or is in progress that includes the elements listed in #3 below.
❑	❑	❑	The plan describes the organizational structure that will be used to operationalize (i.e., lines of authority) the plan.
❑	❑	❑	The plan incorporates and compliments the community response plan.

3. Elements of an influenza pandemic plan.

Completed	In Progress	Not Started	
❑	❑	❑	**A plan is in place for surveillance and detection of pandemic influenza in the population served.**
			❑ Responsibility has been assigned for monitoring public health advisories (federal and state) and informing members of the pandemic influenza planning committee and/or the pandemic influenza response coordinator when pandemic influenza is in the United States and when it is nearing the geographic area (e.g., state and/or city). (For more information, see www.cdc.gov/flu/weekly/fluactivity.htm) (Insert name, title and contact information)
			_____
			❑ A system has been created to monitor and review influenza activity in patients cared for by clinical staff (i.e., weekly or daily number of patients calling or presenting to the office or clinic with influenza-like illness) and among medical office or clinic staff. (For more information see www.cdc.gov/flu/professionals/diagnosis/) (Monitoring for seasonal influenza activity is performed to ensure that the monitoring system for pandemic influenza will be effective and will ensure that organizations can detect stressors that may affect organizational capacity, such as staffing and supply needs, and hospital and emergency department capacity [and supply needs] during a pandemic)
			❑ A system is in place to report unusual cases of influenza-like illness and influenza to the local or state health department. (For more information see www.hhs.gov/pandemicflu/plan/sup1.html#outpat and www.hhs.gov/pandemicflu/plan/sup5.html#nov)
❑	❑	❑	**A communication plan has been developed.**
			❑ Key public health points of contact for pandemic influenza have been identified and arrangements have been made for telephone, facsimile, or e-mail messaging.
			Local health department contact: (Insert name, title and contact information)
			_____
			State health department contact: (Insert name, title and contact information)
			_____
			❑ The office or clinic's point person for external communication has been assigned. (Insert name, title and contact information)
			_____
			(Having one person who speaks with the health department, and if necessary, media, local politicians, etc., will help ensure consistent communication is provided by the organization)
			❑ A list has been created of healthcare entities and their points of contact (e.g., local hospitals/health facilities, home health care agencies, social service agencies, emergency medical services, commercial and clinical laboratories, relevant community organizations [including those involved with disaster preparedness]) with whom the medical office or clinic anticipates that it will be necessary to maintain communication and coordination of care during a pandemic. (Attach or insert location of contact list)
			_____
			_____

3. Elements of an influenza pandemic plan. *(continued)*

Completed	In Progress	Not Started	
			❑ The pandemic response coordinator has contacted local or regional pandemic influenza planning groups to obtain information on communication and coordination plans, including notification when updated plans are created. (For more information on state and local planning, see **www.hhs.gov/pandemicflu/plan/part2.html#overview**)
			❑ A list or database has been created with contact information on patients who have regularly-scheduled visits and may need to be contacted during a pandemic for purposes of rescheduling office visits or assigning them to another point of care. (Insert location of list/database)
			_____
			_____
❑	❑	❑	**A plan is in place to provide an education and training program to ensure that all personnel understand the implications of, and control measures for, pandemic influenza.**
			❑ A person has been designated to coordinate education and training (e.g., identify and facilitate access to education and training programs, maintain a record of attendance at education and training programs). (Insert name, title and contact information)
			_____
			❑ Current and potential opportunities for long-distance (e.g., web-based) and local (e.g., health department or hospital sponsored programs, programs offered by professional organizations or federal agencies) education of medical and nursing personnel have been identified. (**http://www.cdc.gov/flu/professionals/training/**)
			❑ Language and reading-level appropriate materials on pandemic influenza (e.g., available through state and federal public health agencies and professional organizations) appropriate for professional, allied and support personnel have been identified and a plan is in place for obtaining these materials. (For more information see **www.cdc.gov/**h1n1flu/clinicians/patient_education/)
			❑ Education and training includes information on infection control measures to prevent the spread of pandemic influenza. **www.hhs.gov/pandemicflu/plan/sup4.html**
❑	❑	❑	**Informational materials for patients on pandemic influenza that are language and reading-level appropriate for the population being served have been identified, and a plan is in place to obtain these materials. (For more information see www.cdc.gov/h1n1flu/clinicians/patient_education/)**
			❑ The roles of medical and nursing personnel in providing health care guidance for patients with pandemic influenza have been established.
❑	❑	❑	**A plan for triage and management of patients during a pandemic has been developed.**
			❑ A system is in place for phone (and e-mail, where appropriate) triage of patients to determine who requires a medical evaluation, to limit office visits to those that are medically necessary.
			❑ Plans have been developed to manage patient care at the height of the pandemic including the following possibilities:
			• Temporarily canceling non-essential medical visits (e.g., annual physicals).
			• Designating separate blocks of time for non-influenza and influenza-related patient care.
			❑ Local plans and criteria for the disposition of patients following a medical evaluation (e.g., hospitalization, home health care services, self- or family-based care at home) have been discussed with local hospital and health care agencies and local health department. (Flexibility will be necessary based on hospital bed capacity)
❑	❑	❑	**An infection control plan is in place and includes the following: (For information on infection control recommendations for pandemic influenza see www.hhs.gov/pandemicflu/plan/sup4.html)**
			❑ A specific waiting room location has been designated for patients with symptoms of pandemic influenza that is segregated from other patients awaiting care. (This may not be feasible in very small waiting rooms, in which case the emphasis may be on use of masks as noted below)

3. Elements of an influenza pandemic plan. *(continued)*

Completed	In Progress	Not Started	
			❑ A plan for implementing Respiratory Hygiene/Cough Etiquette is in place. (For more information see www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm)
			• Signage (language appropriate) directing patients and those accompanying them to notify reception personnel if they have symptoms of pandemic influenza has been developed or a source of signage (e.g., CDC website above) has been identified.
			• Signage (language appropriate) on Respiratory Hygiene/Cough Etiquette instructing symptomatic persons to use tissues to cover their cough to contain respiratory secretions and perform hand hygiene has been developed or a source of signage (e.g., CDC website above) has been identified.
			• The plan includes distributing masks to symptomatic patients who are able to wear them (adult and pediatric sizes should be available), providing facial tissues, receptacles for their disposal and hand hygiene materials in waiting areas and examination rooms.
			• Implementation of Respiratory Hygiene/Cough Etiquette has been exercised during seasons when influenza and other respiratory viruses (e.g., respiratory syncytial virus, parainfluenza virus) are circulating in communities.
			• If patients with pandemic influenza will be evaluated in the same location as patients without an influenza-like illness, separate examination rooms have been designated for evaluation of patients with symptoms of pandemic influenza.
			• A policy is in place that requires healthcare personnel to use Standard (www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html) and Droplet Precautions (i.e., mask for close contact) (www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html) with symptomatic patients.
			• The policy includes protection of reception and triage personnel at initial points of patient encounter.
❑	❑	❑	**A vaccine and antiviral use plan has been developed.**
			❑ Websites where current federal and/or state health department recommendations for the use and availability of pandemic influenza vaccines and antiviral medications have been identified. (for more information see www.hhs.gov/pandemicflu/plan/sup6.html)
			❑ An estimate of the number of personnel and patients who would be targeted as first and second priority for receipt of pandemic influenza vaccine or antiviral prophylaxis, based on HHS guidance for use, has been developed. (www.dhhs.gov/nvpo/pandemicplan/annex6.pdf) (This estimate can be used for considering which patients may need to be notified first about vaccine or antiviral availability, anticipating staffing requirements for distribution of vaccines and antivirals, and for procurement purposes)
❑	❑	❑	**An occupational health plan has been developed and includes the following:**
			❑ A liberal/non-punitive sick leave policy for managing personnel who have symptoms of or documented illness with pandemic influenza.
			The policy considers:
			• The handling of staff who become ill at work.
			• When personnel may return to work after recovering from pandemic influenza.
			• When personnel who are symptomatic, but well enough to work, will be permitted to continue working.
			• Personnel who need to care for their ill family members.
			❑ A system for evaluating symptomatic personnel before they report for duty and tested during a non-pandemic influenza period.
			❑ Mental health and faith-based resources that are available to provide counseling to personnel during a pandemic.

3. Elements of an influenza pandemic plan. *(continued)*

Completed	In Progress	Not Started	
			❑ The management of personnel who are at increased risk for influenza complications (e.g., pregnant women, immunocompromised healthcare workers) by placing them on administrative leave or altering their work location.
			❑ The ability to monitor seasonal influenza vaccination of healthcare personnel.
			❑ The offer of annual influenza vaccine to medical office or clinic personnel.
❑	❑	❑	**Issues related to surge capacity (i.e., dealing with an influx of patients and staff and supply shortages) during a pandemic have been addressed. (For more information see www.hhs.gov/pandemicflu/plan/sup3.html#surge)**
			❑ Plans for managing a staffing shortage within the organization due to illness in personnel or their family members have been addressed.
			❑ Staff have been encouraged to develop their own family care plans for the care of dependent minors and seniors in the event community containment measures (e.g., "snow days," school closures) are implemented. (www.pandemicflu.gov/planguide/checklist.html; www.pandemicflu.gov/planguide/familyhealthinfo.html)
			❑ The minimum number and categories of personnel necessary to keep the office/clinic open on a given day have been determined.
			❑ Plans for either closing the office/clinic or recruiting temporary personnel during a staffing crisis have been addressed.
			❑ Anticipated consumable resource needs (e.g., masks, gloves, hand hygiene products, medical supplies) have been estimated.
			❑ A primary plan and contingency plan to address supply shortages have been developed and each details procedures for acquisition of supplies through normal channels, as well as requesting resources when normal channel resources have been exhausted.
			❑ Plans include stockpiling at least a week's supply of consumable resources, including all necessary medical supplies, when there is evidence that pandemic influenza has reached the United States.

A5

Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employers

Occupational Safety and Health Administration
U.S. Department of Labor
OSHA 3328-05
2007

Occupational Safety and Health Act of 1970

"To assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health."

This publication provides a general overview of a particular standards-related topic. This publication does not alter or determine compliance responsibilities which are set forth in OSHA standards, and the Occupational Safety and Health Act. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements, the reader should consult current administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts.

This information will be made available to sensory impaired individuals upon request. Voice phone: (202) 693-1999; teletypewriter (TTY) number: 1-877-889-5627.

This document is not a standard or regulation, and it creates no new legal obligations. Likewise, it cannot and does not diminish any obligations established by Federal or state statute, rule or standard. The document is advisory in nature, informational in content, and is intended to assist employers in providing a safe and healthful workplace. *The Occupational Safety and Health Act* requires employers to comply with hazard-specific safety and health standards. In addition, pursuant to Section 5(a)(1), the General Duty Clause of the Act, employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. Employers can be cited for violating the General Duty Clause if there is a recognized hazard and they do not take reasonable steps to prevent or abate the hazard.

ACRONYMS

CDC	Centers for Disease Control and Prevention
EPA	U.S. Environmental Protection Agency
HEPA	high-efficiency particulate air
HHS	U.S. Department of Health and Human Services
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
LRN	Laboratory Response Network
NIOSH	National Institute for Occupational Safety and Health
OSH Act	Occupational Safety and Health Act of 1970
OSHA	Occupational Safety and Health Administration
PAPR	powered air-purifying respirator
PLHCP	physician or another licensed healthcare professional
PPE	personal protective equipment
RT-PCR	reverse transcriptase polymerase chain reaction
SARS	severe acute respiratory syndrome
SNS	Strategic National Stockpile
SPN	Sentinel Provider Network
WHO	World Health Organization

Contents

Introduction

A pandemic is a global disease outbreak. A flu pandemic occurs when a new influenza virus emerges for which people have little or no immunity, and for which there is no vaccine. The disease spreads easily person-to-person, causes serious illness, and can sweep across the country and around the world in a very short time.

It is difficult to predict when the next influenza pandemic will occur or how severe it will be. Wherever and whenever a pandemic starts, everyone around the world is at risk. Countries might, through measures such as border closures and travel restrictions, delay arrival of the virus, but they cannot stop it.

An especially severe influenza pandemic could lead to high levels of illness, death, social disruption, and economic loss. Everyday life would be disrupted because so many people in so many places become seriously ill at the same time. Impacts can range from school and business closings to the interruption of basic services such as public transportation and food delivery.

An influenza pandemic is projected to have a global impact on morbidity and mortality, thus requiring a sustained, large-scale response from the healthcare community. The 1918 influenza pandemic was responsible for over 500,000 deaths in the United States, while the 1957 and 1968 pandemic influenza viruses were responsible for 70,000 and 34,000 deaths, respectively. 1 More recently, one modeling study estimated that an influenza pandemic affecting 15 to 35 percent of the United States population could cause 89,000 to 207,000 deaths, 314,000 to 734,000 hospitalizations, 18 to 42 million outpatient visits, and 20 to 47 million additional illnesses. 2 In contrast, from 1990 to 1999, seasonal influenza caused approximately 36,000 deaths per year in the United States. 3

A substantial percentage of the world's population will require some form of medical care. Healthcare facilities can be overwhelmed, creating a shortage of hospital staff, beds, ventilators and other supplies. Surge capacity at non-traditional sites such as schools may need to be created to cope with the demand.

It is expected that such an event will quickly overwhelm the healthcare system locally, regionally, and nationally. 4 An increased number of sick individuals will seek healthcare services. In addition, the number of healthcare workers available to respond to these increased demands will be reduced by illness rates similar to pandemic influenza attack rates affecting the rest of the population. Finally, healthcare workers and healthcare resources will also be expected to continue to meet non-pandemic associated healthcare needs.

In order to mitigate the effects of an influenza pandemic on the healthcare community, it is important to identify healthcare providers and recognize the diversity of practice settings.

- The delivery of healthcare services requires a broad range of employees, such as first responders, nurses, physicians, pharmacists, technicians and aides, building maintenance, security and administrative personnel, social workers, laboratory employees, food service, housekeeping, and mortuary personnel. Moreover, these employees can be found in a variety of workplace settings, including hospitals, chronic care facilities, outpatient clinics (e.g., medical and dental offices, schools, physical and rehabilitation therapy centers, health departments, occupational health clinics, and prisons), free-standing ambulatory care and surgical facilities, and emergency response settings.
- The diversity among healthcare workers and their workplaces makes preparation and response to a pandemic influenza especially challenging. For example, not all employees in the same healthcare facility will have the same risk of acquiring influenza, not all individuals with the same job title will have the same risk of infection, and not all healthcare facilities will be at equal risk although all will be similarly susceptible. During an influenza pandemic, healthcare workers may be required to provide services in newly established healthcare facilities to accommodate patient overflow from traditional healthcare settings (e.g., convention centers, schools, and sports arenas). Consequently, the cornerstone of pandemic influenza preparedness and response is an assessment of risk and the development of effective policies and

procedures tailored to the unique aspects of various healthcare settings.

Collaboration with state and federal partners is vital to ensure that healthcare workers are adequately protected during an influenza pandemic. The goal of this document is to help healthcare workers and employers prepare for and respond to an influenza pandemic.

The guidance document is organized into four major sections:

- Clinical background information on influenza
- Infection control
- Pandemic influenza preparedness
- OSHA standards of special importance

Given the technical nature and breadth of information available in the document, each section has been subdivided (see Table of Contents) in order to allow readers to quickly focus on areas of interest.

The document also contains appendices which provide pandemic planners with samples of infection control plans, examples of practical pandemic planning tools and additional technical information. Topic areas include Internet resources, communication tools, sample infection control programs, self-triage and home care resources, diagnosis and treatment of staff during a pandemic, planning and supply checklists and risk communication. This educational material has been provided for informational purposes only and should be used in conjunction with the entire document in order to ensure that healthcare workers are adequately protected during a pandemic. OSHA does not recommend one option over the many effective alternatives that exist.

OSHA has prepared additional, general information to assist workplaces in their preparation for an influenza pandemic entitled, *Guidance on Preparing Workplaces for an Influenza Pandemic* which is available at www.osha.gov.

[Table of Contents]

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[Table of Contents]

Influenza: Clinical Background Information

Historically, influenza has caused outbreaks of respiratory illness for centuries, including three pandemics (worldwide outbreaks of disease) in the 20th century. 1 There are three types of influenza viruses: types A, B, and C. Only type A influenza viruses cause pandemics. Seasonal influenza outbreaks can be caused by either type A or type B influenza viruses. Influenza type C viruses cause mild illness in humans but do not cause epidemics or pandemics. This guidance is aimed at protecting healthcare workers in the event of an influenza pandemic; therefore, the focus will be on the characteristics of type A influenza viruses.

Of the three types of influenza viruses, only type A is divided into subtypes. Subtype designations are based on the presence of two viral surface proteins (antigens): hemagglutinin (H) and neuraminidase (N). To date, 16 different hemagglutinin and 9 different neuraminidase surface proteins have been identified in influenza A viruses. 2 Subtypes are designated as the H protein type (1–16) solely or followed by the N protein type (1–9) (e.g., H5N1). Three different subtypes (i.e., H1N1, H2N2, and H3N2) have caused pandemics in the 20th century. Influenza A viruses vary in virulence, infectivity to specific hosts, modes of transmission, and the clinical presentation of infection.

Seasonal, avian, and pandemic influenza can occur in humans. It is important to have a basic understanding of the terms seasonal, avian and pandemic influenza in order to appreciate the guidance in this document.

- **Seasonal influenza** or "flu" refers to periodic outbreaks of acute onset viral respiratory infection caused by circulating strains of human influenza A and B viruses. Seasonal "flu" is the kind of influenza with which healthcare workers and the public are most familiar. In temperate regions of the world, seasonal influenza generally occurs most frequently during the winter months when the humidity and outdoor temperatures are low (generally from December until April in northern temperate regions). Between 5–20 percent of the population may be infected annually. Most people have some immunity to the currently circulating strains of influenza virus and, as a result, the severity and impact of seasonal influenza is substantially less than during pandemics. Each year, a trivalent influenza vaccine is prepared in advance of the anticipated seasonal outbreak and it includes those strains (two type A and one type B) that are expected to be the most likely to circulate in the upcoming "flu" season. Influenza vaccine is currently targeted toward those at greatest risk of influenza-related complications and their contacts, such as healthcare workers.
- **Avian influenza**, also known as the bird flu, is caused by type A influenza viruses that infect wild birds and domestic poultry. Some forms of the avian influenza are worse than others. Avian influenza viruses are generally divided into two groups: low pathogenic avian influenza and highly pathogenic avian influenza. Low pathogenic avian influenza naturally occurs in wild birds and can spread to domestic birds. In most cases it causes no signs of infection or only minor symptoms in birds. In general, these low pathogenic strains of the virus pose little threat to human health. Low pathogenic avian influenza virus H5 and H7 strains have the potential to mutate into highly pathogenic avian influenza and are, therefore, closely monitored. Highly pathogenic avian influenza spreads rapidly and has a high death rate in birds. Highly pathogenic avian influenza of the H5N1 strain is rapidly spreading in birds in some parts of the world.

Highly pathogenic H5N1 is one of the few avian influenza viruses to have crossed the species barrier to infect humans, and it is the most deadly of those that have crossed the barrier. Most cases of highly pathogenic H5N1 infection in humans have resulted from contact with infected poultry or surfaces contaminated with secretion/excretions from infected birds.

As of November 2006, the spread of highly pathogenic H5N1 avian influenza virus from person to person has been limited to rare, sporadic cases. Nonetheless, because all influenza viruses have the ability to change, scientists are concerned that highly pathogenic H5N1 avian influenza virus one day could be able to sustain human-to-human transmission. Because these viruses do not commonly infect humans, there is little or no immune protection against them in the human population. If the highly pathogenic H5N1 avian influenza virus were to gain the capacity to sustain transmission from person to person, a pandemic could begin.

- **Pandemic influenza** refers to a global disease outbreak. A flu pandemic occurs when a new influenza type A virus emerges for which people have little or no immunity, and for which there is no vaccine. The disease spreads easily person-to-person, causes serious illness, and can sweep across the country and around the world in a very short time. Such a virus is likely to have origins from avian viruses or possibly from other animal sources (e.g., pigs). Many scientists believe that since no pandemic has occurred since 1968, it is only a matter of time before another pandemic occurs. A pandemic may occur in waves of outbreaks with each wave in a community lasting 8 to 12 weeks. One-to-three waves may occur.

Rapid detection of unusual influenza outbreaks, isolation of possible pandemic viruses and the immediate notification of national and international health authorities is critical for mounting a timely and effective response to a potential pandemic. The World Health Organization (WHO) maintains a global surveillance system of circulating influenza

B1

POST-TRAUMATIC STRESS

It impacts us all.

I had the opportunity to attend the WSCFF Legislative Conference two months ago in Olympia. As I walked through the impressive marble hallways, I couldn't help but feel humbled. Knowing that this building is where our elected officials create the laws that impact us personally and professionally made me stop and reflect. One of the items on our agenda was to discuss adding PTSD as a work-related injury. Currently our laws state that PTSD is based on a single event that must be reported within a year of the event. Although studies are showing that post-traumatic stress may be a singular event, it is clear that the cumulative effect is just as dangerous. Our current law fails to recognize this important revelation and many firefighters are left behind.

If you remain in this profession long enough, you may be affected by post-traumatic stress. When I first started firefighting, it was not okay to discuss your feelings or show your emotions (it just wasn't cool). You were supposed to just shut your mouth and shove those feeling down deep inside. When I look back now, I realize how destructive this culture was to me and my brothers and sisters in the fire service.

Recently, I experienced how these hidden feelings can rise to the surface when you least expect it. A month ago, we responded to a technical rescue in the most northern point in Kitsap County. The last time I was on that road was over 29 years ago when I was resident firefighter with North Kitsap. I was driving the medic unit and responded to a teenager with a self-inflicted GSW. When we arrived, the patient was still alive and the parents, who found their child, were on scene. I remember it was very chaotic and emotions were raw.

To be honest, I thought those memories were way behind me and I had moved on. That was until we were dispatched to the technical rescue. As we were responding I was surprised when memories from over 29 years ago started to come back to me. I started to remember images from that day and the feelings became more intense the closer we got. I didn't feel particularly overwhelmed or disabled by those memories but I was surprised how I was still being affected. We completed the call and returned back to our station but the episode was not lost on me. I shared this with some of my coworkers and with the one person that has always been there for me, my wife. Talking about this experience seemed to help me realign but made me ask the following question. If I felt this way, how many other of my fellow firefighters are experiencing the same episodes? Although I may never know the answer to this question, I just want you to know that you're not alone and there is help.

If you ever have any of these feelings, I plead with you to talk to someone as soon as possible. This can be a counselor, clergy member, EAP or one of your PEER support team members. The point is simply this, WE all need help at some point in our professional and personal lives. Seeking help does not make us weak or less of a man or woman. In fact, it makes us stronger and better prepared to handle the pressures and demands of our profession. Be safe and take of yourself and each other.

Lieutenant Dan King
E51-B

Why should I be aware of suicide?

- According to FireHero.org of the National Fallen Firefighters Foundation, it is estimated that suicide is four times more likely to happen in a fire department than a line of duty death.
- Firefighter suicide significantly impacts partners, colleagues, supervisors, first responders, family, friends and the community at large.
- Eighty percent of people who attempt suicide tell somebody first via their actions or actual statements.
- Suicide is a preventable form of death. Education, awareness and training reduce the risk.

Contact:

SPC St. Petersburg College
CENTER FOR PUBLIC SAFETY INNOVATION

Fire Prevention and Safety Grants
Funding provided through DHS/FEMA's Grant Program Directorate
Assistance to Firefighters Grant Program

Suicide prevention

A guide for supervisory staff

Tips for coping

- Cherish your family.
- Congratulate yourself on victories.
- Create an outside hobby.
- Celebrate the good things in life.
- Eat healthy and exercise regularly.
- Remember your priorities in life.

Your job should not be your first priority. It should not define who you are, but rather be something that you do.

B2

Why do people attempt suicide?

Though the reasons may vary, frequently, people attempt suicide because they want others to know they are in psychological pain; they want the pain to end. In addition, depression, anxiety, alcohol, drugs, a relationship loss and being under investigation increase the likelihood a person will attempt suicide.

When someone believes the value of their death is greater than their life, they are at risk for suicide.

Suicide risk factors/ indicators

1. Threats to harm oneself.
2. Prior suicide attempt(s).
3. Disturbance in sleep, appetite or weight.
4. Thinking is constricted – there's an attitude of all or nothing, or issues are black or white.
5. Risk-taking behavior has increased.
6. There is a plan and a means to carry out a suicide.
7. The person is emotionless and/or numb.
8. Anger and/or agitation.
9. Sadness and/or depression.
10. Hopelessness, with no orientation toward the future, or the giving away of valued possessions.
11. Problems at work/home.
12. A recent loss (of status or of a loved one).
13. The person is under investigation.
14. Social isolation and/or withdrawal.
15. Increased consumption of alcohol/drugs.

Supervisor responsibilities

- Obtain suicide prevention training for your agency.
- Make sure that information about suicide prevention is available to line staff.
- Be aware and encourage the use of resources such as chaplains, peer support and Employee Assistance Programs (EAP).
- Ensure that your subordinates feel they will be given assistance and support when they bring a problem forward.

What you can tell your line staff

- When you suspect someone is having suicidal thoughts, reach out as soon as possible.
- Ask the person if he/she is thinking about suicide. Your asking him/her will not make him/her go out and do it.

It is courageous and appropriate to take steps necessary to help a co-worker who is at risk for suicide.

Looking out for your co-worker

Firefighters and emergency medical personnel do not hesitate to protect each other on the job – even if it puts their own lives at risk. But what if your colleague is threatening his/her own life?

If you think a co-worker is contemplating suicide, will you take action? Will you have the courage to act boldly?

Suicide within fire and emergency medical services:

- Most people who die by suicide communicate their intentions ahead of time.
- Untreated, undiagnosed depression can be deadly.
- Cumulative career stress can be as dangerous as post traumatic stress disorder.
- Alcohol increases the risk for suicide.
- Suicide has a devastating effect on family, friends and colleagues.
- Overall good health reduces risk of death by heart attack and suicide.

Tips for coping

- Cherish your family.
- Congratulate yourself on victories.
- Create an outside hobby.
- Celebrate the good things in life.
- Eat healthy and exercise regularly.
- Remember your priorities in life.

Your job should not be your first priority. It should not define who you are, but rather be something that you do.

Contact:

AID LIFE

This acronym may help you remember what to do when assisting a person who is suicidal:

A – Ask. Do not be afraid to ask, "Are you thinking about hurting yourself?" or "Are you thinking about suicide?"

I – Intervene immediately. Take action. Listen and let the person know he or she is not alone.

D – Don't keep it a secret.

L – Locate help. Seek out a professional, peer support person, chaplain, friend, family member or supervisor.

I – Involve command. Supervisors can secure immediate and long-term assistance.

F – Find someone to stay with the person now. Don't leave the person alone.

E – Expedite. Get help now. An at-risk person needs immediate attention from professionals.

Suicide prevention is everybody's business.

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Assistance to Firefighters Grant Program

13-0680-08

Mayday: Firefighter needs assistance!

B3

Common thoughts that keep people from reaching out to a suicidal person

I was afraid to ask about suicidal thoughts.

You cannot give someone the idea of committing suicide.

What if I'm wrong?

Firefighters and emergency medical personnel have good instincts when it comes to reading people. If you are getting a feeling that somebody may hurt him/her self – trust your gut!

If he/she really is suicidal, I won't be able to stop him/her.

Suicidal thoughts are often impulsive and temporary. If you can get the person past the impulse and to proper assistance, he or she will often recover and go on with life.

Suicidal people want to die!

Most people thinking of suicide want a way out of intolerable physical or emotional pain. Some part of them wants to live and you can help them find a way to do it.

If I say something, that person's career is over.

Your best option is to think in terms of necessary and sufficient force. Intervene safely as much as is necessary to keep the person alive and get him or her assistance.

If the person is suicidal but cooperative with seeking help, peer support, confidential counseling, or voluntary inpatient care may be enough.

If, however, the person is uncooperative and/or imminently suicidal, a supervisor may become the necessary force you need to get help. While involving the department may result in the individual being relieved of duty, the person still has a good chance of getting his or her job back once the problems are resolved. The possibility of losing a job should not outweigh a person losing his/her life!

So what can I do?

Eighty-five percent of people who attempt suicide tell someone first – through actions or statements. As a colleague, you may be the first person to see or hear these warning signs. If you think someone may be having thoughts about harming him/her self:

- Trust your instincts.
- Reach out as soon as possible.
- Ask "Are you thinking about killing yourself?"
- Contact your EAP/CISM/Peer Support Group for a confidential consultation.

Once you have confirmed the person is having thoughts of harming him/her self:

- Immediately contact your EAP/CISM/Peer Support Group.
- Ascertain if the person has a plan.
- Ask permission to secure weapon(s), including backup weapons.
- Do not leave the person alone.
- Help delegate necessary duties such as child care until the crisis is resolved.
- Get debriefed when the situation is resolved – for your own peace of mind.

Why do people attempt suicide?

- Psychological/physical pain.
- Depression.
- Anxiety.
- Relationship problems.
- Being under investigation.

Alcohol or other drug problems significantly increase the risk for suicide!

Are there any risk factors/indicators for someone to commit suicide?

- Recent loss (actual or perceived).
- Recent increase in problems (under investigation, financial, marital, work).
- Sadness and/or depression.
- Hopelessness or having no future-oriented plans.
- Social isolation or withdrawal.
- Irritability or increased conflict with others.
- Sudden drop in job performance.
- Increased alcohol or drug use.
- Sleep or appetite problems.
- Constricted thinking – rigid thinking or thoughts that issues are "black and white" only.
- Increased risk-taking behavior.

Those at risk for suicide also might:

- Give away possessions or prepare for death (will, correcting beneficiary information, etc.).
- Talk about suicide.
- Make viable plans and means.
- Have a history of suicidal behavior.
- Practice the plan or means of suicide (suicide rehearsal).

While few of these actions by themselves are a guarantee the person is feeling suicidal, each of these should alert a "backup officer" to be concerned and start asking questions.

B4

Suicide in the Fire and Emergency Services

Adopting a Proactive Approach to Behavioral Health Awareness and Suicide Prevention

NATIONAL VOLUNTEER FIRE COUNCIL
ORG. 1976
Supporting Those Who Serve

Acknowledgements

Acknowledgements

The National Volunteer Fire Council (NVFC) would like to thank the Firefighter Behavioral Health Alliance and the HOPE Health and Research Institute for their contributions to this report.

Firefighter Behavioral Health Alliance

Firefighter Behavioral Health Alliance (FBHA) is a 501(c)(3) nonprofit organization established to directly educate firefighters, emergency medical personnel, and their families about behavioral health issues such as depression, PTSD, anxiety, addictions, and firefighter suicides. The mission of the FBHA is to collaborate, develop, and implement behavioral health awareness, prevention, intervention, and post-crisis strategies to provide firefighters with an easily accessible and confidential source of information. Using best practices and protocols, FBHA promotes awareness, education and training, communication, integration of services, resources, and support to the men and women of the fire and emergency medical services.

HOPE Health and Research Institute

HOPE Health Research Institute (HRI) has done extensive research on fire service health and wellness issues. HOPE HRI Scientists are experts in methodology and statistical analysis who are keenly aware of the special needs of scientists and academicians. They have conducted research in areas such as tobacco control, physical activity and fitness, obesity epidemiology and treatment, dietary interventions, community health interventions, and cardiovascular outcomes.

Supporting Those Who Serve

National Volunteer Fire Council
7852 Walker Drive, Suite 450
Greenbelt, MD 20770

www.nvfc.org

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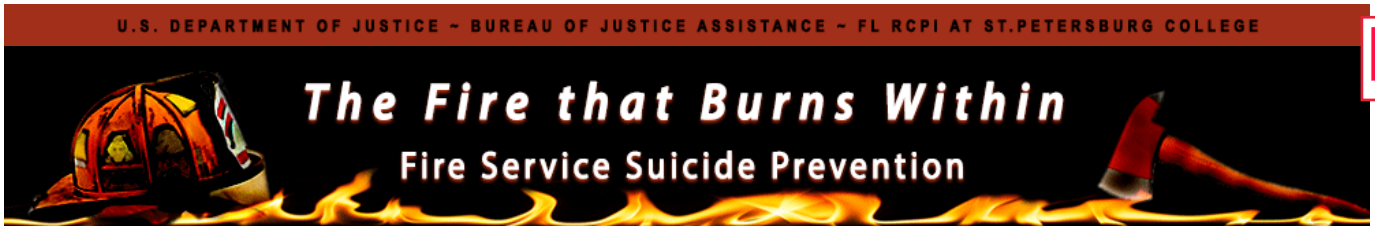
B5



Resources

Multimedia | Organizations | Publications

Multimedia

Firefighters Coping with the Aftermath of Suicide (http://www.youtube.com/watch?v=Ryy7EyAiyeQ)
YouTube - Carson J Spencer foundations - 4/23/2013

Illinois Fire Fighter Peer Support (https://www.youtube.com/watch?v=dgtJWFFIty8&feature=youtu.be) video

Organizations

Recovery.org
Choosing the Best Inpatient Suicidal Thoughts and Addiction Recovery Center (https://www.recovery.org/topics/choosing-the-best-inpatient-suicidal-thoughts-and-addiction-recovery-center/)

Crisis Hotlines for Fire Service:
http://www.firefighterclosecalls.com/news/fullstory/news/Utah (http://www.firefighterclosecalls.com/news/fullstory/news/Utah)
http://safecallnow.org (http://safecallnow.org)

Counseling Service for Fire Fighters (http://www.scff.info)

Everyone Goes Home (http://www.everyonegoeshome.com)

Fire Strong (http://www.firestrong.Org)

Fire Strong Facebook Group (https://www.facebook.com/Firestrong)

Firefighter Behavioral Health Alliance (http://www.ffbha.org)

HelpPRO Suicide Prevention Therapist Finder (http://www.HelpPRO.com/SPTF)

North American Fire Fighter Veteran Network (http://firefighterveteran.com)

Opus Peace (http://www.opuspeace.org/)

Safety & Health Week (http://www.safetyandhealthweek.org)

(http://www.everyonegoeshome.com)Safe Call Now (http://www.safecallnow.org)

Suicide Prevention Resource Center (http://www.sprc.org)

Suicide Prevention Hotline
800-273-TALK

Interested in sponsoring a training?

Please contact Mary VanHaute (mailto:mvhii@borderlandnet.n

Suicide.org (http://www.preventsuicide.org)
Suicide Prevention, Awareness, and Support

International Fire/EMS Safety and Health Week
(http://safetyandhealthweek.org/resources/behavioral-health-resources/)

International Association of Fire Chiefs (http://www.iafc.org)

National Volunteer Fire Council (http://www.nvfc.org)

Firefighter Life Safety Initiatives (http://www.everyonegoeshome.com/16-initiatives/)
Issues of Depression and Suicide in the Fire Service (2011)
(http://1rxflr7bsmg1aa7h24arae91.wpengine.netdna-cdn.com/wp-content/uploads/sites/2/2014/01/depressionsuicide_summary.pdf) - pdf download

Therapist Finder (http://www.HelpPRO.com/SPTF)

Publications

5 ways to help a depressed firefighter
(http://www.firerescue1.com/health/articles/40183018-5-ways-to-help-a-depressed-firefighter)
FireRescue1 readers weigh in on how they approach depression and help colleagues through difficult times.

Career prevalence and correlates of suicidal thoughts and behaviors among firefighters (http://www.jad-journal.com/article/S0165-0327(15)30183-X/abstract)

PUBLIC SAFETY SUICIDE: The Human Dimension
(http://www.ccthomas.com/details.cfm?P_ISBN13=9780398081348)
This book takes an individual human approach to the problem of suicide in public safety occupations. As a researcher in suicide, coauthor John Violanti relies heavily upon statistics to make the case for prevention. These worthwhile statistics help to form the big picture, but one must keep in mind that these are just statistics and not people.

A Manager's Guide to Suicide Postvention in the Workplace
10 Action Steps for Dealing with the Aftermath of Suicide
(http://workingminds.org/ManagersGuidebook.pdf)
Carson J Spenser Foundation & Crisis Care Network, 2013

I Love a Fire Fighter: What The Family Needs to Know
(http://www.ellenkirschman.com/i_love_a_fire_fighter__what_the_family_needs_to_know_119569.htm)
Author: Ellen Kirschman

Issues of Depression and Suicide in the Fire Service
(http://lifesafetyinitiatives.com/13/depressionsuicide_summary.pdf)National Fallen Firefighter Foundation 7/11/2011

Suicide in the Fire and Emergency Service
(http://www.ncafc.com/files/ff_suicide_report.pdf)
PDF download

The Fire that Burns Within: Fire Service Suicide Prevention Web Site

This project was supported by Grant No. 2009-DB-BX-K015 awarded by the Bureau of Justice Assistance to St. Petersburg College's FL Regional Community Policing Institute. The Bureau of Justice Assistance is a component of the Office of Justice Programs, which also includes the Bureau of Justice Statistics, the National Institute of Justice, the Office of Juvenile Justice and Delinquency Prevention, the SMART Office, and the Office for Victims of Crime. Points of view or opinions in this document are those of the author and do not represent the official position or policies of the United States Department of Justice.

Please alert us to any website problems you may experience.
GrantsWebmaster@spcollege.edu (mailto:grantsWebmaster@spcollege.edu)

C1

WASHINGTON FIRE CHIEFS

Voluntary Minimum Entry Level Medical Standards for Firefighters

2015

C2

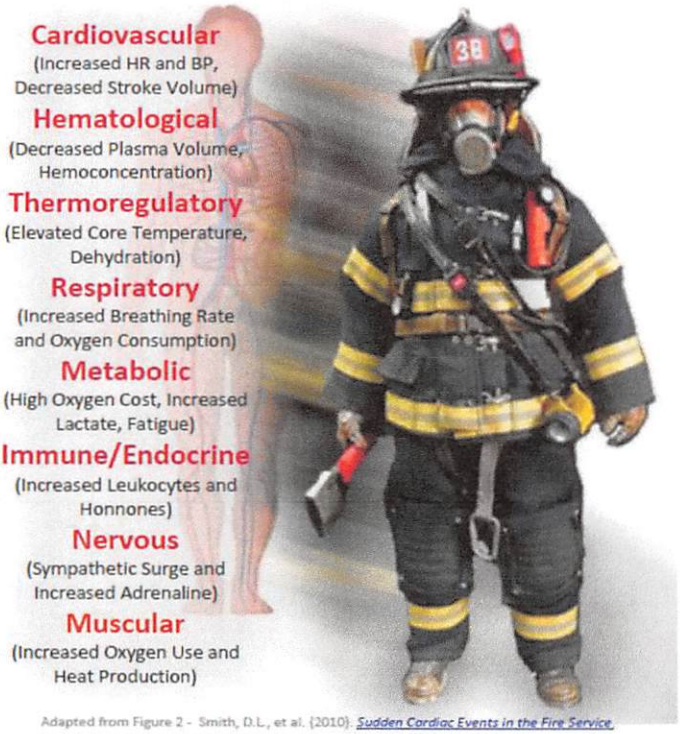
A HEALTHCARE PROVIDER'S GUIDE TO FIREFIGHTER PHYSICALS

YOUR PATIENT IS A FIREFIGHTER!

- Firefighters face unique occupational health risks due to the demands of their job.
- Firefighters routinely operate in harsh work environments with:
  - o excessive heat
  - o dense smoke
  - o emotionally charged situations
  - o extreme physical challenges
  - o toxic chemicals
- Firefighters wear more than 70 pounds of equipment.
- Firefighters breathe compressed air.
- Firefighters represent a distinct subset of the general population.

Firefighters As Tactical Athletes

Physiological Demands of Firefighting



Adapted from Figure 2 - Smith, D.L., et al. (2010). Sudden Cardiac Events in the Fire Service. First Responder Health and Safety Laboratory, Skidmore College.

These extreme physical, mental and environmental stresses increase the firefighter's risks of morbidity and mortality for:

Cardiovascular events:

Cardiovascular events are the leading cause of Line of Duty Deaths among firefighters[1] and, for every line of duty death, there are an estimated 17 non-fatal cardiac events on duty among firefighters[2].

Musculoskeletal injuries:

The National Fire Protection Association estimates firefighters get more than 71,000 injuries a year[3].

Behavioral health issues:

Of firefighters, 46.8% have considered suicide and 15.5% have had an attempt during the course of their career[4].

Cancer:

In 32 states and in 9 Canadian provinces, several types of cancer are considered work-related.[5]

Family history and lifestyle habits obviously add to these risks.

The purpose for this document is to assist the healthcare provider in the evaluation, treatment, and ongoing surveillance of the health and wellness of firefighters. The recommendations in this document are supported by ongoing clinical research of firefighters' health and by the extensive experience and expertise of the providers caring for them. These recommendations are offered as assistance for healthcare providers making clinical decisions regarding the medical fitness and/or treatment of firefighters. They are not to take the place of your medically reasonable, appropriate and necessary medical evaluation of the firefighter. As with any clinical references, they should be used with the understanding that ongoing research may result in new information and revised recommendations.

For more information: **www.fstaresearch.org/GetChecked**
To provide feedback: **fstar@iafc.org**

FSTAR
FIREFIGHTER SAFETY THROUGH ADVANCED RESEARCH

PHYSICAL EXAMINATION CHECKLIST

RECOMMENDED YEARLY SCREENING

- ☐ Vitals: BP, HR, RR, Wt, Body Fat Percentage
- ☐ Multi-System PE: skin, mouth, thyroid, vascular, neurologic and musculoskeletal
- ☐ Labs: CMP, CBC, Lipid Panel, TSH, Urinalysis, HbA1c
- ☐ Testing: 12-lead EKG, eye exam, hearing test, oxygen saturation
- ☐ Family History: CVD, sudden cardiac death, diabetes and cancer
- ☐ Personal Health Behaviors: tobacco use, alcohol, exercise, dietary habits

CARDIOVASCULAR HEALTH AND FITNESS

Significant cardiovascular demands of firefighting lead to acute coronary events that account for 45% of deaths among on-duty firefighters, in contrast to 15% of all deaths occurring on conventional jobs. Myocardial infarction is the leading cause of death of firefighters, and these events occur almost exclusively in susceptible firefighters with underlying cardiovascular disease (CVD). It is therefore prudent to thoroughly screen for, and aggressively treat, all CVD risk factors, including diabetes, in this very high risk group of patients.

- ☐ Ischemia is best evaluated by an imaging exercise stress test (nuclear or echocardiography) beginning at age 40 or earlier for clinical suspicion. Exercise stress testing without imaging is not recommended as it may fail to identify one-third of those who may need cardiac intervention (angioplasty or bypass surgery).
- ☐ Consider Coronary Artery Calcium CT scan to evaluate occult coronary artery disease.
- ☐ Echocardiography is recommended once as a baseline to evaluate significant cardiac structural abnormalities, including LVH and HCM.

CANCER

Chronic exposures to heat, smoke, and toxic flame retardants through inhalation, ingestion, and skin absorption put firefighters at risk for many cancers. The National Institute for Occupational Safety and Health (NIOSH) performed a multi-year study of nearly 30,000 firefighters to better understand the potential link between firefighting and cancer. The firefighters studied showed higher rates of certain types of cancer than the general U.S. population in digestive, oral, respiratory, and urinary cancers. Providers should be especially vigilant to conduct cancer screening efforts in these particular areas. The following cancer screening recommendations for firefighters do exceed those of the USPSTF guidelines for the general population. It is because of our extensive clinical experiences dealing with firefighter health issues that we are strongly advocating for these screening tests in this high risk group. We rely on your medical judgment to prescribe the most appropriate screenings in this unique patient population.

- ☐ Colonoscopy or other appropriate colon cancer screening beginning at age 40.
- ☐ Annual PSA with digital rectal exam between 40-45. Sufficient information regarding the risk and benefits of screening and treatment should be discussed.
- ☐ Annual pap smear.
- ☐ Annual mammograms beginning at age 40. Discuss screening at an earlier age if there is a family history or any patient concern.
- ☐ Annual testicular exam and instruction about self-examination.
- ☐ Annual head to toe skin examination and appropriate dermatology follow-up.
- ☐ Urinalysis annually for microscopic hematuria.

MUSCULOSKELETAL INJURIES

The high intensity and dynamic work environment of firefighting leads to a high incidence of musculoskeletal injuries. Low back injuries represent approximately 50% of all job related musculoskeletal injuries among firefighters. These include strains, sprains, and intervertebral disc injuries, often leading to significant morbidity with the possibility of permanent disability. Obesity and deconditioning are strong predictors of musculoskeletal injuries.

- ☐ Address underlying musculoskeletal issues. Assess for full range of motion, low back strength and flexibility as well as core muscle strength.
- ☐ Refer as necessary for treatment.
- ☐ Encourage flexibility and core strengthening exercises.

BEHAVIORAL HEALTH

The mental and physical stress of firefighting and repeated exposure to trauma can lead to depression, anxiety, acute stress reactions, post-traumatic stress, and suicidal ideation. Self-medication with alcohol and drugs can result in substance abuse disorders.

- ☐ Behavior health screening.
  1. Prime MD: http://www.psy-world.com/prime-md_print1.htm
  2. AUDIT & CAGE for Alcohol Screening: http://pubs.niaaa.nih.gov/publications/arh28-2/78-79.htm

LUNG DISEASE

In the line of duty, firefighters are often exposed to carbon monoxide and other inhaled toxins, or irritants that may lead to acute respiratory issues such as hypoxemia or bronchoconstriction. Repeated exposure may cause chronic pulmonary disease and abnormal lung function. Changes in lung function and the development of lung disease may be detected with baseline and periodic assessment and should include the following tests.

- ☐ Spirometry: Baseline and annual pulmonary function testing in those with a history of respiratory health problems and in healthy individuals; to include FEV1, FVC, and the absolute FEV1/FVC ratio.
- ☐ Chest x-ray: Baseline chest x-ray in those with any respiratory symptoms or disease and in healthy individuals. Repeat chest x-rays every 5 years or sooner if medically indicated.
- ☐ Consider low dose CT for screening for lung cancer in high risk individuals.

SLEEP DISORDERS

Sleep disorders are highly prevalent in firefighters and include sleep apnea, insomnia, shift-work disorder, and restless leg syndromes. It is imperative to screen firefighters for these disorders since they substantially increase the risks for motor vehicle accidents, cardiovascular disease, diabetes, depression, and anxiety in firefighters.

- ☐ Assess sleep and use of sleep medications.
- ☐ Screen for sleep apnea and consider sleep study as indicated.
- ☐ Helpful screening tools include:
  1. Epworth Sleepiness Scale: http://bami.us/Sleep/SleepScale.html / yoursleep.aasmnet.org/pdf/Epworth.pdf
  2. STOP-Bang questionnaire: http://www.stopbang.ca/osa/screening.php
  3. Berlin questionnaire: https://www.fairview.org/fv/groups/internet/documents/web_content/s_062202.pdf
  4. Diagnosis of obstructive sleep apnea (OSA) algorithm: guideline.gov/algorithm/6582/NGC-6582_1.pdf

INFECTIOUS DISEASES

Firefighters are often first on the scene of an emergency and may be exposed to HIV, hepatitis (A, B and C), TB and other infectious diseases.

- ☐ Establish immunity by vaccination record review and/or titers and update vaccines including Tdap, MMR, HBV, and Varicella. Consider hepatitis A vaccine.
- ☐ Baseline and periodic screening for HIV, HBV, HCV and other communicable diseases.
- ☐ Provide annual influenza vaccine.

SUPPORTING DOCUMENTS

Standard on Comprehensive Occupational Medical Program for Fire Departments NFPA 1582, http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards?mode=code&code=1582

The International Association of Fire Chiefs wishes to acknowledge and thank the following contributors and reviewers for their tireless effort and volunteering their expertise to the development of this Healthcare Provider's Guide to Firefighter Physicals.

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REFERENCES

To access over 35 targeted research references used as the basis for this document, visit www.fstaresearch.org/resource/?FstarId=11576

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4. IH Stanley, et al. Career prevalence and correlates of suicidal thoughts and behaviors among firefighters. J Affect Disord. Nov 2015 http://www.ncbi.nlm.nih.gov/pubmed/26339926

5. IAFF. Presumptive Law Coverage for Cancer. http://www.iaff.org/hs/phi/disease/cancer.asp

ADDITIONAL RESOURCES

NFPA 1582: Standard on Comprehensive Occupational Medical Program for Fire Departments NFPA 1582,
http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards?mode=code&code=1582

IAFF/IAFC Wellness Fitness Initiative, http://www.iafc.org/files/healthWell_WFI3rdEdition.pdf.pdf

FSTAR
FIREFIGHTER SAFETY THROUGH ADVANCED RESEARCH

Visit www.fstaresearch.org to search for research and information you can use.

FSTAR is managed by the International Association of Fire Chiefs and is funded by a FEMA/AFG/Fire Prevention and Safety grant award.

C3

GENERAL FIRE FIGHTER JOB FUNCTIONS
JOB ANALYSIS

WORKER:
CLAIM #:
INJ/ILL #:
JOB TITLE:

EMPLOYER:
ADDRESS:
PHONE
CONTACT:

SUMMARY OF ESSENTIAL JOB TASKS:

Fire Fighters perform multiple, complex and high-risk procedures and techniques in responding to fire and non-fire emergencies. Essential functions include the following:

- Carries raises and takes down ground ladders ranging from 12 to 55 feet; operates aerial ladders
- Lays, charges and operates a hose (line); collects, folds and re-loads hose on engine.
- Carries and throws tarps; operates portable pumps, saws; breeches walls, moves or removes furniture, obstacles.
- Climbs stairs and ladders carrying equipment such as forcible entry and room fire equipment, protective gear, and uncharged hose lines with nozzles.
- Wears a respirator (SCBA) in order to safely perform fire fighting operations, or perform rescues in conditions where smoke or gases may be present; duties may require a Fire Fighter to wear a SCBA thirty (30) minutes to several hours at one time.
- Cuts or creates openings in structures to ventilate smoke/gases using power saw, ax or other tools.
- Searches premises and rescues (and removes) victims by carrying them down stairs or ladders; administers first aid to victims (includes starting IVs, placing victim on backboard, administering cardiac care).
- Sizes up a motor vehicle accident scene; operates extraction tools such as hydraulic jaws, ram, and cutters; dismantles vehicles to safely extricate victims.
- Performs equipment checks; pulls equipment out of compartments for cleaning and maintenance; washes engines, trucks.
- Performs household duties at fire station such as sweeping, mopping, power washing, lawn mowing.
- Inspects business/industrial locations for compliance with fire codes.
- Educates the public on fire safety issues and rules.

Non-essential functions: none

DAYS AND HOURS WEEKLY, SCHEDULED BREAKS AND ESTIMATED OVERTIME:

24-hour shift, worked as follows: 7:30 a.m. – 7:30 a.m. 1 day on / 2 days off, followed by 1 day on / 4 days off. Every 8 cycles, an extra day [debit day] is worked in the middle of a 4-day-off period.

PHYSICAL REQUIREMENTS OF JOB TASKS:

NOTE: Although a 24-hour shift is worked, the following terms apply to an eight (8) hour work day; variations to this baseline occur due to the nature of this occupation.
INTERMITTENT is on an "on and off again" basis;

RARELY = 1 < % of the time **FREQUENTLY** = 34 - 66% of the time (2.7 - 5.3 hrs.)
OCCASIONALLY = 1 - 33% of the time (4.8 min. - 2.6 hrs.) **CONSTANTLY** = 67-100% of the time (5.3 - 8.0 hrs.)

Percentage of work day and/or intermittence is noted if appropriate. **N/A denotes "not applicable."** Surface, body part involved, object used, weight, distance, and average/maximum times are noted below.

The physical demands of this position are considered to be: **Heavy** (50 to 100 pounds lifted/carried or force exerted occasionally; 25 to 50 pounds lifted/carried or force exerted frequently).

STANDING: Frequently, dynamic standing, raising ladders, operating a hose, clearing debris, inspecting equipment, sweeping or mopping, power washing

WALKING: Frequently, walking from and to truck or engine multiple times at fire or accident scenes

RUNNING: Occasionally, running from truck or engine to fire or accident scene with tools, equipment, fan or other items; running to pull a dry hose; running to transport a victim on a backboard; running up or down a staircase

SITTING: Occasionally, riding in a truck or engine to and from a fire or accident scene

DRIVING: Occasionally, if assigned to drive equipment to and from a fire or accident scene

BALANCE: Occasionally, when climbing ladders or stairs, suppressing fires at or near rooftops or several stories above ground, walking or running on wet or muddy surfaces, carrying victims

WORK AT HEIGHTS: Occasionally, when suppressing fires at or near rooftops roof tops or several stories above ground, climbing/standing on a ladder, standing on top of parked equipment

CLIMB STAIRS OR LADDERS: Occasionally, deploying and climbing a ground or aerial ladder to enter a building or suppress a fire; climbing stairs in a building to reach sources of fires or to access and retrieve victims

WALK ON ROUGH GROUND or UNEVEN SURFACES: Frequently, when working in fire scenes that have no pavement or smooth surfaces, working on surfaces strewn with debris

TWIST OR TURN: Frequently, removing and replacing protective gear, tools and equipment from the truck, removing, deploying and replacing ground ladders, moving or removing furniture or other obstacles

BEND/STOOP: Occasionally, unwinding hoses, laying a hose, coupling and uncoupling a hose, mopping a floor, dismantling a vehicle, unpacking and re-packing medical equipment and supplies

CROUCH/SQUAT: Occasionally, unwinding hoses, pulling hose, coupling and uncoupling a hose, administering first aid to a victim

CRAWL/KNEEL: Occasionally, crawl: on the floor or through wreckage to access a victim;
kneel: unwinding hoses, laying/pulling hose, coupling and uncoupling a hose, administering first aid to a victim

AWKWARD POSITIONS: Occasionally, reaching over or under wreckage or debris to reach and remove a victim, administer first aid to a victim, or remove debris and obstacles at an accident or fire scene

REACHING:

SHOULDER TO OVERHEAD: Occasionally, climbing up ground or aerial ladders, hoisting ground ladders onto shoulder, pulling up to enter a truck or engine, swinging an ax or a sledgehammer overhead

WAIST TO SHOULDER: Frequently, pulling hoses off of truck or engine, carrying/using axes or other tools, moving or removing furniture or other obstacles, retrieve and store items and supplies

FLOOR TO WAIST: Occasionally, holding/carrying ground ladders with other Fire Fighters, putting on boots and pants, picking up hoses from the ground, shoveling debris

EXTENSION/FLEXION: Occasionally; extension: pushing ladders back into trucks or engines, pushing on internal or external doors in buildings, shoving debris away at a fire or MVA scene; flexion: retrieving hoses, grasping ground ladders below waist

HANDLING/GRASPING: Frequently, using tools, hoses, fist aid cases, ladders, protective gear, backboards, removing victims, sweeping, mopping

REPETITIVE USE OF HANDS/ARMS:

___ Low: <1250 movements/hr.
___ Medium: 1250-2500 movements/hr.
___ High >2500 movements/hr.

POWER GRASPING: Occasionally, moving/pulling/operating a charged hose, breaching a wall, hanging on to ladder rungs after strenuous exercise

FINGER/FEEL: Occasionally, starting an IV on a victim, adjusting oxygen and mask, putting on and removing protective gear, writing reports, typing on a computer, using MSA self-contained breathing apparatus

OPERATE FOOT CONTROL: Occasionally, if assigned to drive equipment

SPEAK/HEAR REQUIREMENTS: Essential to be able to speak to and hear fellow Fire Fighters, Commanders, and victims

VISION REQUIREMENTS: Near and far acuity essential to perform duties of this position; must be able to see and operate equipment and tools in dark and/or smoky conditions

PUSH: Exerting force on or against an object in order to move it away. No. of lbs. excess of 50# (force)
(N)ever (R)arely (O)ccasionally (F)requently (C)onstantly

Using:__O___ arm/hand __O__ leg/foot __O__ whole body __O__right/left/both

Objects pushed include: debris, doors, walls and beams, furniture, ladders, victims on a backboard

PULL: To draw towards oneself, in a particular direction, or into a particular position.
No. of lbs. excess of 50# (force)
(N)ever (R)arely (O)ccasionally (F)requently (C)onstantly

Using:__O___ arm/hand __O__ leg/foot __O__ whole body __O__right/left/both

Objects pulled include: dry and charged hoses of varying lengths, ladders, debris, doors, walls and beams, furniture, victims on a backboard, pulling rope on extension ground ladders; also pulled are victims who may or may not be on a backboard

LIFTING: Sample of objects lifted include: protective gear-boots, pants, coat, helmet (28#); self-contained breathing apparatus (25#); radio + flashlight (5#); portable fire extinguisher (32#); ax and trumpet tool (weighed together: 20#); 28-foot, 2-section ground ladder (84#); 35-foot, 3-section ground ladder (approx. 120-135#; other ground ladders include 14- and 18-foot roof ladder, 10-foot extension ladder, and 45-foot ladder); dry and charged hoses of varying lengths; hydraulic jaws (48#); hydraulic ram (36#); hydraulic cutters (30#); fan (78#); gasoline generator (appox. 115#), 16" blade chain saw (20#); portable 8-gallon capacity wet vacuum (empty: 30#); defibrillator pack (26#); oxygen kit (14#); first aid kit (14#); thermal imager (8#). Also lifted are victims of varying weights.

1 -10 lbs.	Frequently
11 - 20 lbs.	Frequently
21 - 30 lbs.	Frequently
31 - 50 lbs.	Occasionally
51 - 75 lbs.	Occasionally
76 - 100 lbs.	Occasionally
100 + lbs.	Occasionally

Most items (or victims) are lifted from ground/floor to waist level, occasionally to frequently throughout a working shift.

Heaviest item lifted *jointly* is a 45-foot ground ladder, weighing in excess of 120-135 lbs. and lifted __1__ time per day.

Heaviest amount of weight lifted alone is a victim (adult or child); weight will vary, but an adult will generally weigh a minimum of 100 lbs.

CARRYING: Sample of objects carried include: protective gear-boots, pants, coat, helmet (28#); self-contained breathing apparatus (25#); radio + flashlight (5#); portable fire extinguisher (32#); ax and trumpet tool (weighed together: 20#); 28-foot, 2-section ground ladder (84#); 35-foot, 3-section ground ladder (approx. 120-135#; other ground ladders include 14- and 18-foot roof ladder, 10-foot extension ladder, and 45-foot ladder); dry and charged hoses of varying lengths; hydraulic jaws (48#); hydraulic ram (36#); hydraulic cutters (30#); fan (78#); gasoline generator (appox. 115#), 16" blade chain saw (20#); portable 8-gallon capacity wet vacuum (empty: 30#); defibrillator pack (26#); oxygen kit (14#); first aid kit (14#), thermal imager (8#). Also carried are victims of varying weights.

1 -10 lbs.	Frequently
11 - 20 lbs.	Frequently
21 - 30 lbs.	Frequently
31 - 50 lbs.	Occasionally
51 - 75 lbs.	Occasionally
76 - 100 lbs.	Occasionally
100+ lbs.	Occasionally

The heaviest amount of weight carried is a victim (adult or child); weight will vary, but an adult will generally weigh a minimum of 100 lbs. Fire Fighters must support the combined weight (53#) of protective gear and a self-contained breathing apparatus (SCBA) in addition to other weight that is carried, as warranted by conditions and tasks.

The distance a victim is carried will also vary, but may include descending a ladder or a staircase.

TOOLS, VEHICLE OR EQUIPMENT OPERATION, MATERIALS, PRODUCTS, SUPPLIES, PROTECTIVE CLOTHING, SAFETY DEVICES ETC. REQUIRED TO PERFORM JOB, TRAINING OR PROCEDURE:

Equipment and tools used include the following: hydraulic equipment, fan, wet vac, gasoline generators, chain saw, ground ladders, protective gear such as helmet, boots, and coat, breathing apparatus, radio, flashlights, first aid kits, defibrillator, hoses, power washer; hand tools such as axes, crow bars, sledgehammers.

MINIMUM / PREFERRED QUALIFICATIONS:

High School Graduate or completion of General Education Certificate (GED).
Valid Driver's License and positive record (Driving records will be checked in all 50 States).
Candidates must be able to communicate effectively in English, both verbally and in writing.
Be at least 18 years of age.

Candidates must pass a comprehensive written examination, be in physical condition to successfully pass a physical ability and strength test, be subject to a complete medical exam including vision/hearing tests, complete a psychological exam and must meet or exceed established standards. Washington State Emergency Medical Technician (EMT) Certification required to be considered for final hire (not required to apply.)

Successful candidates must also complete approximately 12.5 weeks of training at the Fire Academy.

ENVIRONMENTAL CONDITIONS:

FUMES, CHEMICALS, DUST, ODORS: Exposed to extremely toxic and hot gases, fumes and smoke; exposure to hazardous substances

EXPOSURE TO EXTREME CHANGES IN TEMPERATURE: Exposed to extremely high temperatures in enclosed spaces from fires; normal Northwest seasonal changes and temperatures

VIBRATION: Vibration occurs when using power equipment such as chain saw, or riding in an engine or truck

LIGHT: Duties may be performed at night, or inside buildings where visibility is extremely poor due to thick smoke or electricity outage

NOISE: Exposed to loud and very loud noises from pumps, engines, trucks, sirens, and loud voices from commanders and fellow Fire Fighters

VENTILATION: Exposed to extremely poor ventilation conditions at fire scenes

HAZARDS: Exposes to fall hazards from climbing ladders or stairs; exposed to burn and smoke/gas inhalation hazards from working around fires and/or combustible materials; exposed to electrical shock hazards, especially if working around electrical lines; exposed to fast moving traffic at MVA scenes

INDOOR OR OUTDOOR WORK: 60% indoors; 40% outdoors

VARYING WORK SITES: Work is performed at the assigned station, and at varying fire and accident scenes

POSSIBLE JOB MODIFICATIONS: None

COGNITIVE/PSYCHOSOCIAL REQUIREMENTS:

The following mental/psychosocial functions are considered essential for the performance of the duties of this position:

- Cope with and perform under chaotic and emergency situations; guide and communicate with victims who may be distressed, incoherent, English-limited, or who may be children
- Ability to maintain focus on task while integrating information from multiple, simultaneous sources such as radio communications, and communications from fellow Fire Fighters
- Recall, process and apply detailed and complex emergency response protocols and instructions
- Organize and prioritize time, decisions, and resources
- Adapt quickly and efficiently to changing, priorities, tasks, emergencies and environmental circumstances
- Respond to and execute orders from commanders
- Cope with heights; ability to ascend and descend ground and aerial ladders
- Ability to perform duties professionally and satisfactorily in a full 24-hour shift
- Ability to self-assess and report any diminishing physical and/or psychological capacities affecting job performance
- Ability to skillfully perform repetitive tasks
- Ability to work and cooperate with a close-knit team

Job analysis information provided by Lt. Jay Hagen, Colette McClennan, and remainder of crew of Attack Unit 17, Ladder 9. Information confirmed by Lt. Jay Hagen, and Disability Officer Lt. David Busz.

This description represents the requirements of a specific job based on personal observations, discussions with the employer, or representatives, and/or workers. On occasion, practicality and feasibility prevent the direct observation and/or gathering of objective quantifiable data; for this reason, a "best estimate" may have been used. Information contained in this Job Analysis was obtained via on-site interview on 7.19.01 and written by J. Andrew Rodriguez, ABVE, Vocational Rehabilitation Consultant #9091.

PHYSICIAN'S STATEMENT

_____, WORKER

❑ **CAN** perform the essential tasks of the job described on a reasonably continuous, full time basis as of_____ (date). (SAME JOB FULL TIME)

❑ **CAN** perform the essential tasks of the job described on a reasonably continuous basis as of _____ (date) according to the following schedule (TRANSITIONAL RETURN TO WORK - TO SAME JOB): Comments

Hours per day/workdays per week
Week 1: _____hours/_____days
Week 2: _____hours/_____days
Week 3: _____hours/_____days
Week 4: _____hours/_____days

❑ **CAN** perform the essential tasks of the job described on a reasonably continuous basis with the following temporary restrictions as of _____ (date)
for _____.
(SAME JOB WITH TEMPORARY RESTRICTIONS OR MODIFICATIONS):

❑ **CAN** perform the essential tasks of the job described on a reasonably continuous basis with the following job modifications only, as of _____ (date):
(SAME JOB WITH *PERMANENT* RESTRICTIONS OR MODIFICATIONS):

❑ **CANNOT** ❑ **at this time** ❑ **ever** perform the essential tasks of the job described on a reasonably continuous basis for the following objective medical reasons:

COMMENTS:

_____ _____
PHYSICIAN'S SIGNATURE DATE

_____
PHYSICIAN'S PRINTED NAME

C4

JOIN

LOGIN

MENU

Annual Medical Physicals: The Risk Is Real; So Is the Solution

June 4, 2018 | Chief Nathan Trauernicht

Is your department ready to stand down? This year's Safety Stand Down theme is "Be Aware – Get Checked."

For all the risks our firefighters face, it's early detection through annual medical evaluations and physicals that will make the biggest impact in saving lives. The IAFC, NVFC, NFPA, IAFF and almost every other emergency-service association of significance has stated that a comprehensive, annual health evaluation is critical to firefighter safety.

So where are we at? Is ignorance still bliss? Or has what you don't know hurt you yet?

With scientific fact staring us all in the face, can you continue to say that accepting unnecessary risk is still just part of the job?

Getting an annual medical physical is about you and your health, wellness and wellbeing, but the impact of the physical goes further. Think of it as a wheel

with spokes and a hub. The firefighter is the hub; those supporting the ability to function efficiently on an emergency scene are the spokes:

- NFPA 1582
- Chief officers
- Healthcare providers
- Labor groups or associations
- Elected officials
- The community
- Fellow firefighters
- Our loved ones

These are all interconnected, and any failure at the hub or spoke level increases risk to everyone.

As of 2016, an IAFC survey found that only 45% of volunteer firefighter respondents and up to 80% of career firefighter respondents receive annual firefighter physicals. The main thrust for many years has been identifying and preventing sudden cardiac arrest. But now a new herd of elephants have entered the tent: PTSD, depression, anxiety, sleep deprivation and occupational cancer.

If your organization hasn't already implemented a program, you can't push this off any longer. The conversation starts with a simple message: "Our primary goal is to protect your health. Protecting your health also safeguards your job, your fellow firefighters, the community that needs you and the family that counts on you."

Regardless of how our departments choose to use results from the evaluations, we must provide our members with the facts.

If nothing else, it means our members need to consider the risk to themselves, their families and their fellow firefighters if they're to consciously avoid a condition that could bring preventable harm to themselves or others.

Are there hurdles for many departments to clear before physicals can become a reality? Yes, but you'll never get over a hurdle if you don't try to jump.

The group of fire service leaders tasked with putting this year's Safety Stand Down together have assembled a website with the latest information on how to make this important initiative a reality for your organization. You'll also find resources developed by some of our industries preeminent experts on keeping firefighters healthy and fit for the job.

Join me, the IAFC Safety Health & Survival Section and our partners at the National Volunteer Fire Council Safety in participating in this year's Stand Down, happening June 17-23. All departments and personnel are asked to take the week to focus their attention on safety and health education and training. A week is provided to ensure all duty shifts can participate.

Visit SafetyStandDown.org and use the materials on this site to implement Safety Stand Down in your department.

Nathan Trauernicht, MPA, CFO, CTO, CEMSO, MIFireE, is the fire chief for the UC Davis (California) Fire Department and a member of the Safety, Health & Survival Section's Board. He's been a member of the IAFC since 2005.

Safety Stand Down Week is June 17-23, focusing on firefighter medicals and physicals. Is your department ready?

Topics: Safety & Health | Health | Safety | Wellness

Related News

Code? What Code?

September 26, 2018

If code officials know what responders face, they can address those concerns and work on future code language to improve conditions. If code officials communicate trends, responders can make informed decisions in the field. Communicating is key! **read more »**

Fire Prevention Week: A Good Time to Reflect

September 26, 2018

This year's Fire Prevention Week theme is "Look, Listen, Learn: Be Aware, Fire Can Happen Anywhere." **read more »**

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September 26, 2018

Am I suggesting the fire service do away with fire-prevention activities? Absolutely not! But are you doing a disservice to your responsibility to protect your community by using the label "fire prevention?" **read more »**

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Aug 24-27, 2022
San Antonio TX

Best Practices for Preventing Firefighter Cancer Poster

The Volunteer and Combination Officers Section (VCOS) and the National Volunteer Fire Council (NVFC), along with the Fire Service Occupational Cancer Alliance, the Firefighter Cancer Support Network (FCSN), and with support from California Casualty, have developed a poster of the ...

Removing Diesel Exha from Apparatus Bays

Until further research is co the IAFC is currently of the that exhaust capturing syst the most effective to preve firefighter exposures in ad other systems. As addition scientific independent rese conducted on vehicle mou filtration ...

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Findings from a Study of Cancer among U.S. Fire Fighters

July 2016

In 2010, the National Institute for Occupational Safety and Health (NIOSH) began a multi-year study of nearly 30,000 fire fighters from the Chicago, Philadelphia, and San Francisco Fire Departments to better understand the potential link between fire fighting and cancer. The study was a joint effort led by researchers at NIOSH in collaboration with researchers at the National Cancer Institute and the University of California at Davis Department of Public Health Sciences, and supported in part by the U.S Fire Administration. This study was completed in late 2015.

What we found

The fire fighters we studied showed higher rates of certain types of cancer than the general U.S. population.

Based on U.S. cancer rates:

- Fire fighters in our study had a greater number of cancer diagnoses and cancer-related deaths.
  - These were mostly digestive, oral, respiratory, and urinary cancers.
- There were about twice as many fire fighters with malignant mesothelioma, a rare type of cancer caused by exposure to asbestos.
  - Exposure to asbestos while fire fighting is the most likely explanation for this.
- There were more cases of certain cancers among younger fire fighters.
  - For example, fire fighters in our study who were under 65 years of age had more bladder and prostate cancers than expected.

When comparing fire fighters in our study to each other:

- The chance of lung cancer diagnosis or death increased with amount of time spent at fires.
- The chance of leukemia death increased with the number of fire runs.

What this means

For fire service

This study provides further evidence that fire fighters are at increased risk of certain types of cancer as a result of occupational exposure. Raised awareness and exposure prevention efforts are cost-effective means to reduce occupational cancer risk. Thus, the fire service should increase efforts to educate members about safe work practices. This includes proper training, proper use of protective clothing, and proper use of approved respiratory protection during all phases of fire fighting.

For fire fighters

If you are a fire fighter and you are healthy right now this study does not mean that you will get cancer. We don't know, simply from this study, whether or not you will get cancer. Instead, our study found that fire fighters, on average, have a higher risk of certain types of cancer compared to the general population.

If you are a fire fighter and have cancer this study does not mean that your service caused your cancer. This study cannot determine if an individual's specific cancer is service-related. In addition to exposures that you may have encountered as a fire fighter there are other factors that may influence whether or not you developed a particular cancer, and this study was not able to address many of these factors.

If you are an active or retired fire fighter and are worried about your health, share this information with your doctor. It is important that your doctor is kept aware of possible job-related health concerns.

How the study was done

Our study had four steps:

Step 1. We assembled the study population

We assembled the study population from records of the fire departments in Chicago, Philadelphia, and San Francisco. We included 29,993 fire fighters with at least one day of active duty between 1950 and 2009.

Step 2. We gathered cancer and death information through 2009

- From national and state death certificate data, we determined how many former fire fighters had died, and from what causes.
- From state cancer registry data, we identified fire fighters who were diagnosed with cancer.

Based on previous studies of fire fighters, the cancers of primary concern were

- cancers of the
  - lung
  - brain
  - stomach
  - esophagus
  - intestines
  - rectum
  - kidney
  - bladder
  - prostate
  - testes
- leukemia
- multiple myeloma
- non-Hodgkin lymphoma

Step 3. We assessed each fire fighter's potential job exposures

For 19,309 male fire fighters who were first hired in 1950 or later and who were employed for at least one year, we assessed potential job exposure based on existing records. The measures we used were:

- Exposed-days: the number of days each fire fighter worked in a job or at a location with the potential for exposure for each fire fighter from all three fire departments.
- Fire-runs: the total number of fire-runs made by each fire fighter from the Chicago and Philadelphia Fire Departments
- Fire-hours: the total time spent at fires by each fire fighter from the Chicago Fire Department

We only assessed fire-runs and fire-hours for fire departments with data on annual fire-runs and/or amount of time apparatus were deployed into the field.

Step 4. We compared disease outcomes by various groups

We compared death rates and cancer diagnoses in the following groups:

- Fire fighters compared to U.S. and state populations
- Fire fighters with more exposed-days compared to those with fewer
- Chicago and Philadelphia fire fighters who made more fire-runs compared to those who made fewer
- Chicago fire fighters who spent more time at fires compared to those who spent less

Study Limitations

Although the study is large, our ability to detect links between fire fighting and cancer is still limited, especially for rare cancers. Limitations include:

- Few women and minorities were in the study which limits the ability to see links between fire fighting and cancer in these groups.
- Measurements of actual exposures were not available.
- Information on exposures to cancer-causing agents outside of fire fighting was not available.
- Information on lifestyle choices that are linked to cancer (such as diet, exercise, smoking habits, and alcohol use) was not available.

For more information

- NIOSH Fire Fighter Cancer Study Website
  http://www.cdc.gov/niosh/firefighters/ffcancerstudy
- Press Release: NIOSH Study of Firefighters Finds Increased Rates of Cancer
  http://www.cdc.gov/niosh/updates/upd-10-17-13.html
- NIOSH Science Blog: Is There a Link Between Firefighting and Cancer? – Epidemiology in Action
  http://blogs.cdc.gov/niosh-science-blog/2014/12/17/cancer-ff/

- Frequently Asked Questions (FAQs)
  http://www.cdc.gov/niosh/firefighters/pdfs/FAQ-NIOSHFFCancerStudy.pdf
- Publications (available per BMJ guidelines)
  - Mortality and cancer incidence in a pooled cohort of US firefighters from San Francisco, Chicago and Philadelphia (1950– 2009)
    http://www.cdc.gov/niosh/firefighters/pdfs/OEM_FF_Ca_Study_10-2013.pdf
  - Exposure–response relationships for select cancer and non-cancer health outcomes in a cohort of US firefighters from San Francisco, Chicago and Philadelphia (1950–2009)
    http://www.cdc.gov/niosh/firefighters/pdfs/Daniels-et-al-(2015).pdf
  - Creation of a retrospective job-exposure matrix using surrogate measures of exposure for a cohort of US career firefighters from San Francisco, Chicago and Philadelphia
    http://www.cdc.gov/niosh/firefighters/pdf/dahm_et_al_2015.pdf

Cancer screening and prevention

- Lung cancer
  http://www.cdc.gov/cancer/lung/
- Oral cancer
  http://www.cdc.gov/oralhealth/oral_cancer/
- Colorectal (colon) cancer
  http://www.cdc.gov/cancer/colorectal/
- Malignant mesothelioma
  http://ephtracking.cdc.gov/showCancerMesotheliomaEnv.action

If you have questions about this study, or to request printed copies of electronic materials available on the NIOSH website, please send an email to GHartle@cdc.gov, or call the NIOSH Industrywide Studies Branch at (513) 458-7118.

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D2

Evaluating causality for occupational cancers: the example of firefighters

Tee L. Guidotti

Background The evaluation of causality in cancers associated with firefighting presents problems common to other applications of occupational epidemiology in adjudication of individual claims for workers' compensation. A trend in Canada to establish legislated presumptions for compensation of firefighters created an opportunity to re-evaluate the literature applying medicolegal standards of certainty.

Objective To evaluate causality in selected cancer categories for firefighters using the criteria applied in tort litigation and workers' compensation, which is based on the weight of evidence and which is required to take into account individual factors.

Methods The epidemiological literature on cancer risk among firefighters was reviewed based on the weight of evidence rather than scientific certainty. Generalizable frameworks were formulated to define recurrent issues in assessing the evidence from epidemiological studies. The evidence for latency and for a threshold effect with duration of employment was also examined in order to provide practical guidelines.

Results Presumption is justified for the following cancers: bladder, kidney, testicular and brain, and lung cancer among non-smokers. Non-Hodgkin lymphoma, leukaemia and myeloma (each as a class) not only present particular problems in assessment but also merit an assumption of presumption. Four analytical frameworks describe the problems in analysis encountered.

Discussion The preponderance of evidence supports the presumption of causation for certain cancer, mostly rare. These frameworks are applicable to other problems of adjudication that rest on interpretation of epidemiological data. The named cancers, taking into account the special assessment issues described by each framework, are supported by sufficient evidence to conclude that a presumption is warranted but not necessarily sufficient evidence to accept as proof by a scientific standard.

Key words Adjudication; bladder cancer; brain cancer; epidemiology; firefighters; kidney cancer; leukaemia; lung cancer; lymphoma; myeloma; occupational cancer; presumption; testicular cancer; weight of evidence; workers'; compensation..

Introduction

Firefighters are exposed (as in Figure 1) to carcinogens associated with combustion, including polycyclic aromatic hydrocarbons [1]. However, the expected increase in risk of cancer that might result has been difficult to demonstrate, although not for lack of trying [2–5]. The epidemiological literature on firefighters is now among the most complete and detailed for any occupation. The general quality of epidemiological studies on firefighters since 1980 is high and the methods employed are generally similar for the prospective cohort studies, although no two studies are or can ever be identical. This makes firefighters nearly ideal as an occupation through which to explore evidentiary issues in causality.

In Canada, most provincial legislatures and the workers' compensation agencies of the remaining provinces have recently adopted statutory rebuttable presumptions or re-examined eligibility criteria for compensation for firefighters for designated cancers, including bladder, kidney, testes, non-Hodgkin lymphoma, brain, leukaemia, myeloma, and lung cancer in non-smokers. Rebuttable presumption means that one of these cancers arising in a firefighter is considered work-related unless there is compelling evidence to the contrary.

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D3

Taking Action Against Cancer in the Fire Service

August 2013 (V2)

Sponsored on behalf of firefighter safety, health and survival by Honeywell First Responder Products

FCSN

Taking Action Against Cancer in the Fire Service

The Workshop

In late April 2013, the Firefighter Cancer Support Network (FCSN) invited a small group of experts to Indianapolis to develop a white paper on cancer in the fire service.

The participants came from the legal, medical- and social-research communities, and the fire service — including volunteer, combination and career departments and chief officers, firefighters, company officers, union leaders, and local and state fire training directors. Two firefighters who are cancer survivors participated, and every workshop participant knew firefighters who currently have cancer or who died as a result of cancer.

They willingly shared their knowledge, experience, commitment, and questions to better understand and describe the complexity of firefighter cancer awareness. The discussions addressed prevention, diagnosis, treatment and the long-term implications for the firefighter, the firefighter's family, their coworkers, the fire department and community policy. Importantly, they also identified a series of actions that firefighters can take to reduce their exposure to chemicals that can cause or facilitate cancer.

In two-and-a-half days, the working group outlined and wrote the initial draft of a white paper describing the status of cancer in the fire service and developed answers to very challenging questions. This report is the result of that working group which was enhanced by the additional review of multiple career and volunteer operational fire companies, additional clinical researchers and medical physicians, other stakeholders and the leadership of the FCSN.

The Indianapolis Fire Department hosted the workshop at its headquarters, and the Indianapolis Metropolitan Professional Firefighters Association IAFF Local 416 extended its well-known and gracious hospitality and support, complemented by the facilitation skills of the Volunteer & Combination Officers Section of the International Association of Fire Chiefs. Special thanks to Chief John Buckman for taking great notes during the workshop and to Garry Briese for writing the document, to the Indianapolis Firefighter Emerald Society Bagpipe Band for their bus, to the Indiana State Professional Firefighters Association for their support, and to Captain Tim McDonnell, IFD and FCSN Board Member, who did yeoman's work in making the on-site arrangements and logistics.

The FCSN offers our sincere appreciation to all these individuals and organizations for this successful effort.

What is the Firefighter Cancer Problem?

Firefighter cancer is a looming personal catastrophe for each and every firefighter. Cancer is the most dangerous and unrecognized threat to the health and safety of our nation's firefighters.

Multiple studies, including the soon-to-be-released NIOSH cancer study, have repeatedly demonstrated credible evidence and biologic creditability for statistically higher rates of multiple types of cancers in firefighters compared to the general American population including:

- Testicular cancer (2.02 times greater risk)
- Multiple myeloma (1.53 times greater risk)
- Non-Hodgkin's lymphoma (1.51 times greater risk)
- Skin cancer (1.39 times greater risk)
- Prostate cancer (1.28 times greater risk)
- Malignant melanoma (1.31 times great risk)
- Brain cancer (1.31 times greater risk)
- Colon cancer (1.21 times great risk)
- Leukemia (1.14 times greater risk)
- Breast cancer in women (preliminary study results from the San Francisco Fire Department)

2.2

Times more likely a firefighter will develop testicular cancer compared to the general population

We are just beginning to understand the horrific magnitude of the problem, the depth of our naiveté, the challenges involved and the changes required in education, training, operations, medical screenings and personal accountability to effectively address cancer in the fire service.

The signs of firefighters' exposure to carcinogens are everywhere:

- Photos appear every day of firefighters working in active and overhaul fire environments with SCBA on their backs but not masks on their faces.
- Firefighters still proudly wear dirty and contaminated turnout gear and helmets.
- Some fire instructors wear their carcinogen-loaded helmets and bunker gear as symbols of their firefighting experience.
- Diesel exhaust, a recognized carcinogen, still contaminates many fire stations — apparatus bays as well as living, sleeping and eating quarters.
- Many firefighters only have one set of gear which means they are continually re-contaminated from previous fires.
- Some diesel exhaust systems — even when installed — are not used, are used incorrectly or are poorly maintained.
- Bunker gear still is stored in apparatus bays where it is bathed in diesel exhaust.
- Bunker gear goes unwashed for months at a time, even after significant fires.
- Many volunteers carry their contaminated gear in the trunks of their personal vehicles resulting in superheating and enhanced off-gassing of contaminants into the passenger compartment and sometimes even into their homes.
- Firefighters put their contaminated gear into the cabs of their apparatus both before and after fires.
- Some firefighters still take their contaminated bunker pants and boots into sleeping quarters.
- The interiors of apparatus cabs are rarely decontaminated.
- Many firefighters do not take showers immediately following fires.

"Pinpointing the cause of cancer is extremely difficult because firefighters are not exposed to just one agent. They are exposed to multiple cancer-causing agents. Because of the multiple exposures and the multiple routes of exposure — they inhale carcinogens and carcinogens are absorbed through the skin — it is also highly unlikely for firefighters to get only one type of cancer," said Grace LeMas-

ters, Ph.D., a professor of epidemiology at the University of Cincinnati and the lead author of a 2006 meta-analysis of 32 published studies of cancer in firefighters.

Unfortunately, there is no immediate visible impact of carcinogenic exposure, since the time between exposure to carcinogens and the appearance of malignancies can be 20 years or longer, known as the latency period.

"We are not making this up," IAFF General President Harold Schaitberger said. "The connection between firefighting and cancer is real, and there is scientific data to support our position. But we cannot stop there — we must continue to learn more so we can prevent our members from contracting this horrible disease and help them if they do."

IAFC VCOS Chairman, Chief Tim Wall agreed. "Cancer does not discriminate between firefighters," he said. "Volunteers routinely transport bunker gear in their vehicles, wear clothing contaminated after a fire into their homes and expose their families to these carcinogens. This is a terrible problem that requires our full attention and immediate action."

What is the Scope of the Cancer Problem?

A May 2013 report for the President's Cancer Panel, a three-person panel that reports to the U.S. president on the National Cancer Program, said approximately 41% of Americans will be diagnosed with cancer during their lifetime.

But cancer is not the death sentence it was in the past. According to the report, "Cancer: More Americans are Surviving,"

In the early 1970s, the five-year survival rate for all invasive cancers was a dismal 43% and the treatments — disfiguring surgery, almost unbelievably toxic chemotherapy, and indiscriminate radiation — were so dreadful that many patients considered them worse than the disease.

Today the five-year survival rate for all cancers is 67%. Surgery, chemotherapy and radiation — still the triad of successful cancer treatment — are more precise, causing much less pain and disfigurement, resulting in a huge upswing in the number of cancer survivors from just 3 million in 1971 to about 12 million in 2012.

12 million

Number of cancer survivors in 2012, up from 3 million in 1971

While 41% is a significant number by itself and that is a challenge for all Americans, that is not the specific challenge for the fire service.

The fire service faces an even greater challenge. Firefighters have a statistically significant higher risk for multiple cancers than the general population.

In 2006, researchers at the University of Cincinnati published their meta-analysis of 32 studies of cancer among firefighters. Based on their analysis, there was a significantly increased risk among firefighters for a number of cancers, including multiple myeloma, non-Hodgkin's lymphoma and prostate and testicular cancer.

In 2007, the World Health Organization's International Agency for Research on Cancer Working Group classified firefighting as "possibly carcinogenic to humans" and called for more research to better understand cancer risks among firefighters.

In October 2010, the National Institute for Occupational Safety and Health (NIOSH) began a major retrospective study of cancer in firefighters and collected data from some 30,000 firefighters in three metro fire departments. The analysis of the data is underway and the initial report is due in 2014.

In May 2011 at the 2nd National Fire Service Research Agenda Symposium, there was an identified priority for continued research on fire service exposure related to cancer.

In late 2011, Australia started a large-scale study of cancer among up to 162,000 former and current career, part-time and volunteer firefighters, and like the NIOSH study, will include women firefighters.

In 2012, the Massachusetts Coalition for Occupational Safety & Health named firefighting as the most deadly occupation in their state.

In September 2012, the U.S. government announced that the 70,000 surviving firefighters, police officers and other first responders who were present at the World Trade Center and the Pentagon after the attacks of Sept. 11, 2001 are entitled to free monitoring and treatment for some 50 forms of cancer. This is significant because it is the first time that the federal government has formally recognized the link between firefighting and cancer.

In 2012, case studies in the San Francisco Fire Department suggested an increase in breast cancer among women firefighters. While previous studies have not examined cancer risks specific to women, women have now been in the fire service long enough to begin experiencing the effects of long-term exposure to the toxic chemicals from fires. The pending NIOSH Cancer Study will be the one of the few studies examining cancer risks in U.S. female firefighters, although the sample size for female firefighters remains relatively small.

Despite the significant evidence supporting the relationship between firefighting and cancer, not all are in agreement that sufficient evidence exists to establish a causal relationship between firefighting and cancer. In 2009, the National League of Cities (NLC) published a report that noted, "….there is a lack of substantive evidence currently available to confirm or deny linkages between firefighting and an elevated incidence of cancer."

The NLC report also stated, "The cancer research studies do, however, provide solid groundwork from which future studies can be developed and improved. The researchers recommend collaborative efforts by government, scientists, firefighters, municipalities, national associations, and others to undertake additional research, establish a firefighter cancer database, and seek more federal funding for research."

While the methodology and conclusions of this report were criticized and refuted by the national fire service organizations, the NLC report should be read by the fire service as a prime example of the challenges facing existing or new presumptive cancer legislation.

"While more studies certainly will be helpful and will provide more definitive information, we already know enough to take immediate preventive actions to reduce exposure, especially for new firefighters," LeMasters said. "We now know enough to recommend and require changes."

What is Known and Not Known?

Current research demonstrates an increased risk for a number of types of cancer among firefighters.

Although most fire departments are responding to fewer fires than in the past, the amount of exposure time has increased due to the limited number of available firefighters, either due to budget cuts, staffing reductions or the availability of volunteers.

Today's fires grow at a much more rapid rate than yesterday's fires while

WHAT IS THE ROLE OF THE COMPANY OFFICER IN ADDRESSING FIREFIGHTER CANCER?

The company officer, as the leader of the most operational working group in the fire service, is the single most influential person concerning the team's attitude, operations and willingness to change. In this key role, the company officer must lead by example and set clear expectations concerning cancer awareness, prevention, tracking of exposure and the essential operational changes necessary to minimize exposure to carcinogens and other toxins.

WHAT IS THE ROLE OF THE BATTALION CHIEF IN ADDRESSING FIREFIGHTER CANCER?

As a second set of eyes, the next level of supervision and the person in charge of multi-unit operations, the Battalion Chief (BC) has the responsibility of overall command and situational awareness. This key position allows the BC to provide reinforcement of SOPs, SOGs and other operational practices concerning cancer exposure reduction.

exposing firefighters to significantly increased concentrations of highly carcinogenic agents.

Today's residential fires have more in common with hazmat events than old-fashioned house fires due to the materials now common in homes such as plastics and synthetics. Commercial and vehicle fires have highly concentrated toxicants and dumpster fires contain completely unknown substances and toxicants.

Many researchers believe that cancer rates among firefighters would be even higher if it was not for the "healthy-worker effect." Firefighters are expected to have a lower rate of cancer than the general population because the job tends to attract people who are healthy and in better shape, at least when they start their careers.

400%

Increase in absorption for every 5° increase in skin temperature

It is also believed that cancer rates are potentially underreported among firefighters because many firefighters do not discover they have cancer until after retiring and are subsequently then considered to be a part of the general population comparison group.

Volunteers were not, and are not, included in any of the previous or on-going U.S. studies.

A large scale study of cancer and other causes of death among Australian firefighters was begun in late 2011 and up to 162,000 former and current career, part-time, paid and volunteer firefighters make up the study population. This study includes men and women firefighters.

It has become increasingly clear that the two routes of greatest concern for entry of carcinogens into the bodies of a firefighter are:

- Through the lungs: when firefighters do not wear or prematurely remove SCBA, especially during overhaul
- Dermal absorption: where toxicants are absorbed through the skin

Some good news is that firefighters may have a lower incidence of lung cancer in some studies than the general population. If this holds in the current studies underway, it may be due to restrictions on the use of tobacco products and to the increased use of SCBA.

Following the lungs, the skin is the body's second largest organ in area and it is highly absorptive. Some areas of skin are more permeable than others, specifically the face, the angle of the jaw, the neck and throat and the groin. Skin's permeability increases with temperature and for every 5° increase in skin temperature, absorption increases 400%.

The most permeable piece of personal protective equipment is the hood. Hoods are designed to protect our head and neck from heat but are not designed to stop skin absorption through the forehead, angle of the jaw, the neck and throat.

Every firefighter knows that a lot of soot gets through their hoods, sits on sweaty, hot, highly permeable areas of skin, and then is rubbed into the skin as the firefighter is working.

Some cancer studies are also noting that firefighters are developing far more aggressive types of cancers, such as brain cancers, at a younger age than the general population, which provides further indications that the cancer could be a result of firefighting.

Rarely discussed and certainly not documented is the impact on the family of a firefighter diagnosed with cancer including the huge emotional toll, financial costs, time, and decreased quality of life not only for the firefighter but on the spouse/partner and children. They also experience the impact of a cancer diagnosis and prolonged treatment on their loved one.

The direct and indirect cost of a cancer diagnosis on a fire department is huge and starts with the emotional impact on the other firefighters. The loss of a qualified and experienced member, even for the time of treatment, includes training, overtime and backfill and will increase insurance costs after a cancer event which adds to the costs of both the individual and the department.

It is in the interest of all involved to reduce the impact of cancer on the fire service through a proactive and aggressive approach by the reduction of exposure to carcinogens.

The Unique Challenges of the Volunteer and Combination Fire Service

While concerns regarding the exposure to carcinogens are common to both career and volunteer firefighters, the volunteer and combination fire service have some specific challenges that are different and need to be addressed.

Volunteers regularly transport contaminated PPE and other gear in their personal vehicles, thereby exposing themselves and their family members to carcinogens. Because they may return home or go back to work directly after a fire, they often continue to wear their personal clothing, which will stay contaminated.

It is not acceptable to return from a medical call with blood or vomitus on our clothing and then sit back down at work or return to the dinner table at home. The same concern should be exercised after returning from a fire: gear must be cleaned, clothing must be washed and showers must be taken — before returning to work or family activities to reduce carcinogenic exposure.

Many volunteers carry their PPE in their personal vehicle, often in the trunk or even in the vehicle's passenger compartment. Handling PPE in this manner facilitates the off-gassing of toxins and carcinogens, especially when the PPE is heated by elevated temperatures from the sun.

The interior of a car or pickup truck parked in the sun for just a few hours will get very hot. On an 85° day, the interior temperature will rise to more than 120° due to the "greenhouse effect." Surprisingly, the inside of a trunk is often cooler than the inside of the car itself because there are no windows for sunlight to enter. Temperature readings inside the trunk can be 5-10 degrees cooler than the air in the passenger compartment.

In either situation, actions need to be taken to protect from off-gassing into the vehicle passenger compartment. These protective actions could include: keeping PPE in closed, zippered duffle bags or large sealed "Rubbermaid-style" storage bins and taking contaminated PPE back to the fire station on the fire apparatus for washing, cleaning and decontamination.

Most volunteer/combination fire departments are particularly challenged when it comes to tracking exposures over the lifetime of their volunteers who frequently come and go, some staying for a short time and others staying longer.

There is not a common reporting system that tracks which volunteers were

STEPS TO CONSIDER WHEN FIREFIGHTERS TELL YOU THEY HAVE CANCER

Most cancer patients will suffer from distress, ranging from normal feelings of vulnerability and sadness to fear or debilitating anxiety and even panic. They are concerned if their cancer diagnosis is a death sentence and how long they have to live. They also are worried about how they will be perceived by their firefighter colleagues, friends and family; whether they can resume work; how well they will cope with the cancer and the coming treatments; and how to pay their medical bills.

- **Be supportive, offer your presence.**
- **Be a good listener.**
- **Be genuinely concerned.**
- **Offer to assist with identifying their rights for treatment and how to navigate the process.**
- **If you have the knowledge, share it.**
- **If you know where to get the answers, go get them.**
- **Encourage them to maintain copies of all reports and scans.**
- **Encourage others to not stop communications but to send cards and letters since email just does not have the same emotional impact.**
- **Refer them to the Firefighter Cancer Support Network for someone to talk to who has had a similar diagnosis, www.firefightercancersupport.org/.**

on what scene and for how long. In the interim, each firefighter should establish their own method of capturing this type of information, using personal computers, mobile devices or even index cards.

Departments need to identify proper facilities that can be responsive to quickly clean and decontaminate PPE according to the current edition of NFPA 1851. Two current alternatives are sending the gear out for cleaning to qualified vendors or purchasing washer-extractors for use in the fire station.

In the real world, neither of these may be currently available due to budget limitations. In the meantime, some volunteer departments have implemented interim procedures such as: wiping skin areas with Wet-Naps or baby wipes; gross decontamination at the fire scene with booster lines; transporting contaminated gear on fire apparatus to the fire station instead of in personal vehicles; thoroughly washing bunker gear with hoses back at the station; washing clothes and hoods as soon as possible; cleaning helmets and helmet liners/suspensions and immediately showering.

> "The connection between firefighting and cancer is real, and there is scientific data to support our position. But we cannot stop there — we must continue to learn more so we can prevent our members from contracting this horrible disease and help them if they do."
>
> **— Harold Schaitberger**
> **IAFF**

Why are Exposure Records Essential?

Any record of exposure is better than no record.

Currently there is no national guidance for the collection and reporting of exposures to toxicants, including carcinogens or tumor-promoting agents. Exposure reporting guidelines exist for hazmat incidents, but guidelines need to be developed and implemented for exposure to chemicals, toxicants and carcinogens from incidents other than those covered by traditional hazmat guidelines.

Firefighters need to change their perception and acknowledge that structure, vehicle, dumpster and even wildland fires contain the same chemicals and toxicants, sometimes in greater concentrations, than in hazmat releases and exposure records need to be maintained for all of these exposures.

Certainly the establishment and maintenance of exposure tracking systems needs to be the primary responsibility of the fire department, but each individual firefighter needs to ensure that they are also tracking their own exposures. Each firefighter should establish their own method of capturing this type of information, using personal computers, mobile devices or even index cards, if for no other reason than having a backup.

The IAFF and several state union organizations, such as the California Professional Fire Fighters, have established cancer registries and/or exposure tracking systems for their members. While some of these systems have been available for many years, utilization by individual firefighters can still be significantly enhanced as the definition of toxic and carcinogenic exposures expands to include more and more incidents.

In states where cancer presumptive legislation has been implemented, having exposure records bolsters the case of the impacted firefighter as more and more cases are being challenged and existing presumptive legislation is coming under re-examination.

To ensure better protection and prevention, retired firefighters and volunteers who leave service should also be included in these tracking systems for following long-term health status changes, longevity and cause of death. General cancer registries must be updated to capture both an individual's primary and secondary work history, including specific types of hazardous volunteer work (such as firefighting).

What is the Role of the Fire Chief?

Like the company officer, the fire chief must lead by example and set clear expectations about cancer awareness and prevention. The significant difference is that, "the buck stops on the fire chief's desk" to set clear expectations, develop and enforce procedures, policies, and operational changes.

The chief must take the initiative to personally understand the facts about cancer in firefighters. Initiate the discussion among the leadership team and then with the firefighters about the prevalence of cancer in the fire service and the preventive measures that can be implemented.

Identify what the department will do. Identify operational enhancements and changes, set clear expectations and then enforce the policies — every time. The goal is to have firefighters understand the risk and the rationale for the changes. As with any other SOP/SOG, enforcement needs to be consistent with company officers and chief officers setting the example.

Integrate cancer awareness and prevention into related training. Review the SOPs about mandatory use of SCBAs from the initiation of active fire operations to the completion of the overhaul process, field decontamination procedures including the use of industrial strength wet wipes and mandatory showers. Make cancer awareness and prevention a priority, including the implementation of an appropriate exposure tracking system.

Fire chiefs should work with their governing organizations, supervisors, government leaders and unions to seek and provide adequate funding for cancer awareness and prevention, necessary equipment and annual physical examinations, including appropriate cancer screening. An early cancer diagnosis will increase survival and decrease the overall costs of treatment.

How Can the Governing Jurisdiction Assist in Reducing Cancer in Firefighters?

Appointed and elected officials must remain open-minded in order to address the complicated issues surrounding cancer in firefighters as well as the requisite funding that will be necessary to reduce its effects in the fire service.

Many awareness and prevention efforts, including operational changes, are low cost and high impact. There are some essential exposure solutions, like diesel exhaust systems and PPE cleaning, annual physicals and cancer screenings, which require initial and on-going funding. These must become a priority.

If governing jurisdictions are proactive with funding, the wellness of firefighters will be enhanced and the overarching costs that accompany a cancer diagnosis can be better managed and even minimized.

Eventually the costs associated with cancer in firefighters will need to be discussed. In many ways, unfortunately, it really is all about the money.

The National League of Cities (NLC) report stated that "One of the greatest concerns for municipal employers is the financial impact of state-mandated presumptions. Cost estimates are not available due to a lack of data but there are reasons to be concerned about the impact."

The NLC report continues, "The majority of cancers detected today occur after the age of Medicare eligibility and the cost is born broadly across the Medicare system. Under the concept of presumption, Medicare has a right, given its status as a secondary payer, to demand that worker's compensation policies pick up 100% of this lifetime cost in states that have not limited the post-employment eligibility period. This would place substantial additional costs on municipal

ABOUT THE FIREFIGHTER CANCER SUPPORT NETWORK

The FCSN is a 501(c)3 charitable foundation organized to provide timely assistance and one-on-one support to fire/EMS service members and their families after a cancer diagnosis and to educate the fire/EMS service about cancer awareness, prevention, early detection and treatment options.

The FCSN was founded in 2005 by Los Angeles County Fire Department FF/PM Mike Dubron (survivor of stage IV colon cancer). FCSN is governed by an elected ten-member board of directors from across the nation.

For more information or to contact the FCSN, visit www.firefightercancersupport.org.

employers and could lead to a lack of availability for workers' compensation insurance for firefighters."

The NLC raised several municipal policy questions in their study.

- What actions can municipalities take to require and encourage the use of safety equipment by firefighters?
- What actions can be taken take to curtail smoking by career and volunteer firefighters?
- Should municipalities take action to eliminate or limit second jobs held by firefighters that may increase the probability that firefighters develop cancer?
- How should volunteers be treated under the presumptive laws since they often never retire from the fire service?
- Is firefighters' exposure significantly less now that fire departments spend a greater percentage of their on-duty time responding to EMS and other non-fire calls?

Fire service leaders must understand the concerns reflected by the NLC and concurred by other municipal, county and state elected leaders. Understanding does not mean agreeing, it means recognizing. If the fire service is going to be successful in increasing awareness and preventing cancer in firefighters, then the cooperation of both elected and appointed officials is essential.

> "Cancer does not discriminate between firefighters. Volunteers routinely transport bunker gear in their vehicles, wear clothing contaminated after a fire into their homes and expose their families to these carcinogens. This is a terrible problem that requires our full attention and immediate action."
>
> **— Tim Wall, VCOS**

What are the Roles of the Local, State and National Fire Academies?

Leading by example is the best description of the key role that our local, state and national fire academies can fulfill in the initiative to integrate awareness and prevention of cancer in firefighters.

All fire academies need to adopt and integrate awareness training and discussions of the cancer risk to firefighters. It should not be an afterthought, or something that is "bolted on" to a course of instruction. Cancer awareness should be given the status that this terrible risk to the health of firefighters deserves.

Cancer awareness training needs to start with a firefighter's initial training since we now understand that firefighters are exposed to significant carcinogens on a regular basis.

Concentration on the dangers of smoke and soot needs to be enhanced with more information about the carcinogenic impact of components of combustion, including benzene, chloroform, styrene, formaldehyde, polycyclic aromatic hydrocarbons, plasticizers and fire retardants, among many more. All of these are absorbed through the skin.

If SCBA is not worn throughout each fire incident, these carcinogens will also be absorbed through the lungs. Soot has ultrafine particles that enter the lungs and it is also absorbed through the skin traveling to most organs including the brain.

Fire academies need to incorporate recommendations from this paper to provide students with the best examples of what can be done to significantly reduce exposure to carcinogens. Instructors need to "walk the talk" by wearing clean bunker gear and helmets and utilizing other recommendations to teach, perform and enforce new procedures, including the initiation of expedient field decontamination as soon as reasonably feasible after post-fire operations.

The use of skin wipes, such as Wet-Naps or baby wipes should be used to remove soot and contamination from vulnerable skin areas between evolutions and should become as common as rehydrating in rehab.

Training schedules should be adjusted to allow sufficient time for the laundering and decontamination of PPE which must, at a minimum, be conducted in accordance with NFPA and manufacturer recommendations. FF1/FF2 curriculum needs to include instructions on how to perform PPE cleaning using NFPA 1851 highly programmable, front-load washer-extractors and gear dryers. Firefighters in fire operations training should leave the academy environment with cleaner gear than when they arrived.

All levels of fire officer education and training should clearly address the risks of cancer and stress the key role and responsibility of the officer in providing leadership while protecting their firefighters from carcinogens.

Cancer awareness/prevention curricula need to be developed, including appropriate AV support, enhanced videos and personal stories of firefighters surviving a cancer diagnosis. Curricula and supporting information need to be presented to state firefighting standards boards for review and approval and passage to local fire training academies and departments. This training should serve as a catalyst for change through the U.S. fire service.

What Can Fire Equipment Manufacturers and Architects do to Assist?

Manufacturers provide a large variety of what the fire service needs to minimize firefighter exposure to carcinogens including NFPA-compliant personal protective equipment, self-contained breathing apparatus, vehicle exhaust extraction systems, detergents, washer-extractors, gear dryers, cleaning equipment and skin decontamination equipment.

Manufacturers can make a significant contribution by eliminating advertisements showing firefighters with dirty (read: contaminated with carcinogens) bunker gear and helmets since this reinforces and perpetuates the dangerous myth that "the only real firefighter is a dirty firefighter."

Tremendous knowledge resides in these companies and their expertise needs to be embraced as the fire service moves forward to meet this new challenge. Innovation and new approaches may provide cost-effective solutions to cancer prevention questions.

Initially, manufacturers can support "jump starting" firefighter cancer awareness and prevention by directly supporting, with funding, the development of the new firefighter cancer awareness/prevention curricula, appropriate AV support and enhanced videos.

The fire service needs to include manufacturers in the development of these training materials to ensure that the cancer awareness/prevention information is coordinated with available commercial solutions and manufacturer initiatives.

As gaps are identified, further research and development should be conducted by commercial providers to identify the full spectrum of carcinogenic hazards, as well as appropriate protection and decontamination technologies. Funding may need to be facilitated from the US government to support this research and product development.

The design of fire stations, whether for new construction or renovation, must include such standard design features as state-of-the-art equipment and systems for adequate air flow, removal and capture of carcinogens and particulates, appropriate location and ventilation of storage rooms for contaminated PPE and other equipment, washer-extractor and gear drying equipment, as well as clear separation of living quarters from the apparatus floor. In short,

FOR MORE INFORMATION

Annotated Bibliography for Firefighter Cancer Research
www.cpf.org/go/cpf/?LinkServID=6D524CA3-1CC4-C201-3E968C0E88E073B1

Cancer Risk Among Firefighters: A Review and Meta-analysis of 32 Studies
www.iaff.org/hs/PDF/Cancer%20Risk%20Among%20Firefighters%20-%20UC%20Study.pdf

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Vol. 98
http://monographs.iarc.fr/ENG/Monographs/vol98/

Australian Firefighter Health Study
http://www.coeh.monash.org/downloads/firefighters-faqs.pdf

Interagency Board Equipment Subgroup Conference
https://iab.gov/equip.aspx

National League of Cities Assessing State Firefighter Cancer Presumption Laws and Current Firefighter Cancer Research
www.colofirechiefs.org/docs/PresumptionReport2009.pdf

architects should be working to design cancer out of fire stations. Responsible elected and appointed officials should require this type of expertise when hiring design professionals for fire stations.

What about the National Fire Service Organizations?

A commitment from the national fire service organizations, similar to that of the commitment given to the 16 Firefighter Life-Safety Initiatives, is required if significant progress in three to five years is the goal.

A coalition should be formed consisting of the International Association of Fire Fighters (IAFF), International Association of Fire Chiefs (IAFC), Volunteer & Combination Officers Section of the IAFC (VCOS/IAFC), Safety Health & Survival Section of the IAFC (SHS/IAFC), National Volunteer Fire Council (NVFC), Firefighter Cancer Support Network (FCSN), Fire Fighter Cancer Foundation (FFCN), National Fire Protection Association (NFPA), National Association of State Fire Training Directors (NASFTD), Fire Department Safety Officers Association (FDSOA) International Society of Fire Service Instructors (ISFSI), National Fallen Firefighters Foundation (NFFF), International Fire Service Training Association (IFSTA), Fire Apparatus Manufacturers Association (FAMA), and Fire Equipment Manufacturers & Services Association (FEMSA).

It is essential that both for-profit and non-profit fire service textbook publishers, conference organizers and education providers are included as members of this national coalition.

Given the highly successful model of the Life-Safety Initiatives, this new Firefighter Cancer Coalition Initiative can implement the lessons learned and expedite implementation of the recommendations. This will require sustained effort, talent and financial resources over three to five years to develop an aggressive framework to address cancer awareness/prevention in the fire service.

What are the Pending Research Questions?

Many unanswered questions and areas needing further exploration and research were discussed through the creation of this white paper. These topics were all identified as significant, although no priority or tiered ranking was done.

Research Agenda for Cancer in Firefighters, next five to seven years:

- Research in-depth the epidemiology of cancer among firefighters specifically related to the most common types of cancer.
- Develop a firefighter-specific cancer registry to help elucidate the relationship between exposure and cancer development.
- Explore the relationship between behavioral risk factors (high-sugar diets, weight, alcohol consumption, exercise, smoking) and their relative contribution to firefighter cancer.
- Engage cohort studies to better elucidate risk.
- Develop better methods for tracking exposure (e.g. frequency, duration) and relating exposure to risk development.
- Improve identification of better biomarkers for exposure (e.g. blood, urine, saliva) and disease.
- Analyze regional differences in cancer incidence and possible reasons for differences (e.g. behavioral norms around SCBA use, building materials).

- Understand the relative contribution of different routes of exposure (e.g. inhalation vs. skin absorption) among firefighters.
- Examine the contribution of contamination under or through firefighter gear (e.g. boot tops, PPE).
- Investigate the contribution of contamination from helmets, helmet liners, and hoods.
- Research the most effective methods and modes of gear decontamination (e.g. types of cleaners, frequency).
- Research the efficacy of decontamination. (How do we know if it is clean enough?)
- Analyze the effectiveness of APRs or PAPRs in the post fire environment
- Examine the efficacy of rapid field decontamination measures (e.g. wet-Naps or baby wipes on scene).
- Study cancer epidemiology and risk specific to female firefighters (e.g. San Francisco study on breast cancer).
- Research specific epidemiology and risk among minority firefighters.
- Examine the relative efficacy of fire station design features in cancer prevention.
- Determine the extent of carcinogenic exposure within the firehouse.
- Understand the relative effectiveness of prevention efforts among firefighters.
- Investigate the risk associated with firefighter foams used in suppression.
- Research the cancer risk associated with fire retardants.
- Analyze cancer clusters as they are identified.
- Use additional meta-analytic analysis as new research emerges which will be helpful in quantifying the relative risk of different types of cancer for firefighters.
- Create a central resource directory for cancer research to help disseminate and translate research between researchers and the fire service.
- Schedule regular meetings among key stakeholders and the research community to identify research questions, disseminate and translate existing and future research.

The following research areas were identified by the Equipment Subgroup of The Interagency Board when they examined the "Evaluation of Hazards in the Post-Fire Environment" at a meeting in New Orleans in February 2013.

- A comprehensive identification and quantification of the hazards, threats and risks to human health presented in the post-fire environment
- The efficacy of current respiratory protective equipment in the post fire environment, and identification of alternatives if necessary
- The determination as to whether currently available air-purifying respiratory protective equipment may be applicable in the post-fire environment when used in conjunction with commonly available gas detection technologies
- The efficacy of structural firefighter protective ensemble against identified dermal hazards and potential workable enhancements that would reduce skin absorptive risks
- The development of a set of mitigation strategies and PPE selection guidelines based on the above findings
- The efficacy of methods and determination of best practices for decontamination (including field expedient decontamination) from post-fire hazards .
- The identification of man-portable or vehicle transportable detection and analysis capabilities able to identify and quantify the full spectrum of risks to responders and the public

> "Because of the multiple exposures and the multiple routes of exposure — they inhale carcinogens and carcinogens are absorbed through the skin — it is also highly unlikely for firefighters to get only one type of cancer."
>
> **— Grace LeMasters, Ph.D.**
> **University of Cincinnati**

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WHAT IMMEDIATE ACTIONS CAN I TAKE TO PROTECT MYSELF?

1

Use SCBA from initial attack to finish of overhaul. (Not wearing SCBA in both active and post-fire environments is the most dangerous voluntary activity in the fire service today.)

2

Do gross field decon of PPE to remove as much soot and particulates as possible.

3

Use Wet-Nap or baby wipes to remove as much soot as possible from head, neck, jaw, throat, underarms and hands immediately and while still on the scene.

4

Change your clothes and wash them immediately after a fire.

5

Shower thoroughly after a fire.

6

Clean your PPE, gloves, hood and helmet immediately after a fire.

7

Do not take contaminated clothes or PPE home or store it in your vehicle.

8

Decon fire apparatus interior after fires.

9

Keep bunker gear out of living and sleeping quarters.

10

Stop using tobacco products.

11

Use sunscreen or sun block.

The importance of annual medical examinations cannot be overstated — early detection and early treatment are essential to increasing survival.

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