Best Practices

Firefighter Cancer Prevention

Lesson Goal

After completing this lesson, the student shall be able to identify the link between firefighting and cancer, describe cancer prevention methods and explain best practices that relate to cancer prevention to the fire service of the province.

Objectives

Upon successful completion of this lesson, the student shall be able to:

1. Identify the link between firefighting and cancer.

2. Identify ways Firefighters can do their part to help fight cancer by taking effective preventative measures that can help reduce the risks of cancer.

3. Describe the steps used to develop a wellness/fitness program, which will include physical exams, investigations and immunization.

4. Explain reasons to record events of exposure by the use of a detailed exposure report.

5. Identify contamination types and possible locations of exposure.

6. Identify and evaluate the need to support various contamination avoidance practices that can be employed by fire departments and others in the fire service industry.

7. Describe cleaning and decontamination of PPE, equipment, vehicles and personal hygiene on scene and after returning to the hall.

8. Explain the development of a SOP for post fire decontamination.

Instructor Information

This is the lesson covering Firefighter Cancer Prevention Best Practices.

Important instructor information is provided in shaded boxes throughout the lesson plan. Carefully review the instructor information before presenting the lesson.

This lesson includes ten segments on Firefighter Cancer Prevention.

Methodology

This lesson uses lecture, discussion, and activities. The level of learning is application.

Table of Contents

Audiovisuals

Visuals 10.1 to 10.34 (PowerPoint® Presentation)

Easel pad and marker

Activity

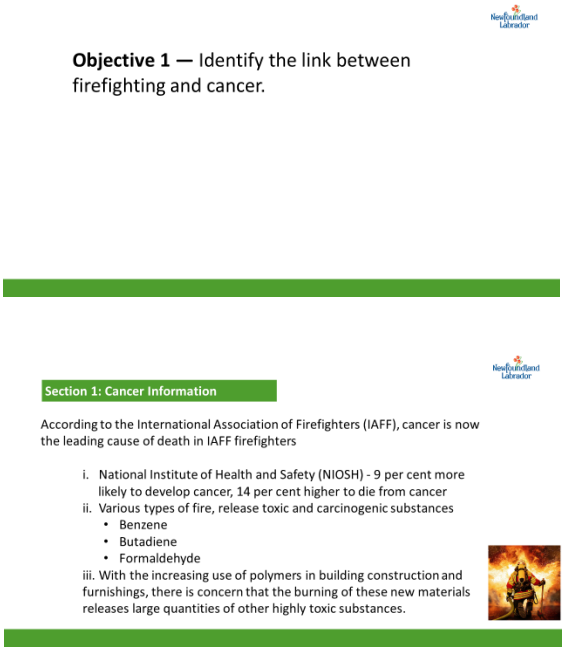
Review Sample SOP for Post Fire Decontamination (Booklet)

Perform simulated Decon Procedures

Section 1: Cancer Information

pp. Objective 1 — Identify the link between firefighting and cancer.

Instruction Note: Direct students to the Cancer Information on page 2 & 3 of the booklet. Briefly discuss the Standards listed on page 3.



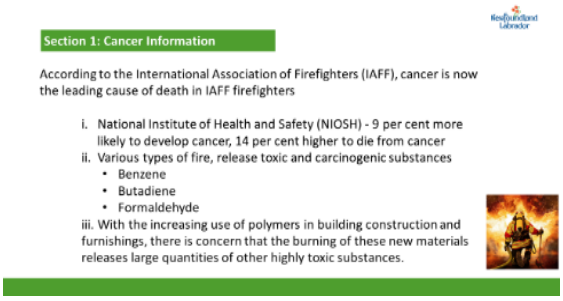
A. Cancer Information

1. According to the International Association of Firefighters (IAFF), cancer is now the leading cause of death in IAFF Firefighters

i. National Institute of Health and Safety (NIOSH) found that Firefighters are 9 per cent more likely to develop cancer than the general population and 14 per cent higher to die from cancer.

ii. Various types of fire, release toxic and carcinogenic substances, including benzene, 1,3- butadiene, and formaldehyde.

iii. With the increasing use of polymers in building construction and furnishings, there is concern that the burning of these new materials releases large quantities of other highly toxic substances.

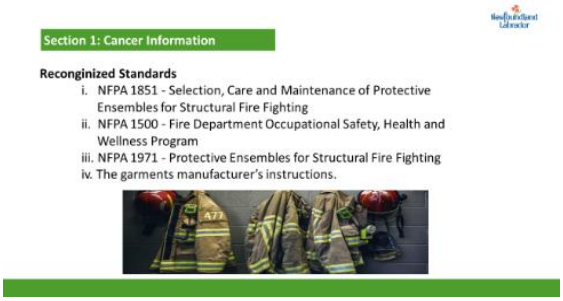


2. Exposure

i. Firefighters are exposed to many known or suspected carcinogens (cancer causing agents) during the course of a typical career.

ii. Keeping the above information in mind, fire departments are encouraged to maintain training records and incident reports for the purpose of tracking each exposure while the member is in the fire service.

iii. Each fire department is encouraged to use this Prevention Guide to help mitigate the risk to their members while they protect the members of our communities.



3. Recognized Standards

i. NFPA 1851, Standard on Selection, Care and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting

ii. NFPA 1500, Standard on Fire Department Occupational Safety, Health and Wellness Program

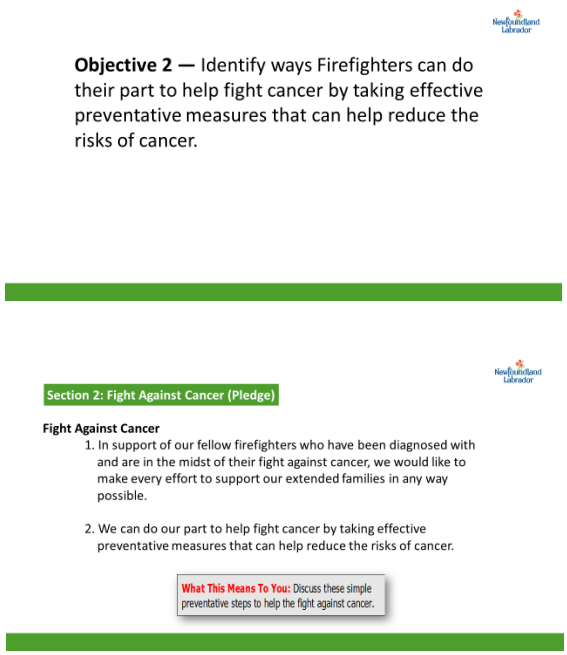
iii. NFPA 1971, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting

iv. The garments manufacturer's instructions.

Review Question: What are some of the types of toxic and carcinogenic substances Firefighters may be exposed to? *See pages 2-3 of the booklet for answers.*

Section 2: Fight against Cancer (Pledge)

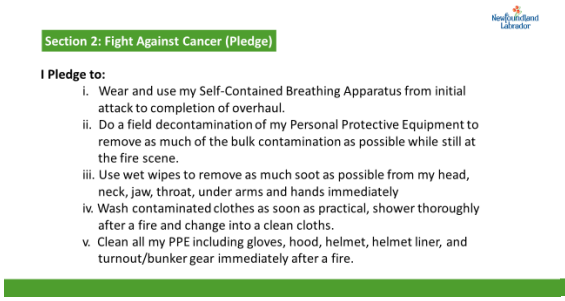
pp. Objective 2 — Identify ways firefighters can do their part to help fight cancer by taking effective preventative measures that can help reduce the risks of cancer.

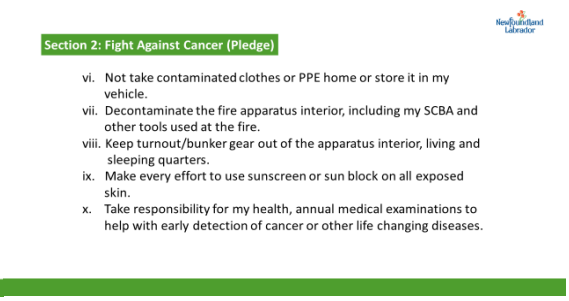


B. Fight Against Cancer

1. In support of our fellow Firefighters who have been diagnosed with and are in the midst of their fight against cancer, we would like to make every effort to support our extended families in any way possible.

2. We can do our part to help fight cancer by taking effective preventative measures that can help reduce the risks of cancer.





What This Means To You: Discuss these simple preventative steps to help the fight against cancer.

I pledge to wear and use my Self-Contained Breathing Apparatus (SCBA) from initial attack to completion of overhaul.

I pledge to do a field decontamination of my Personal Protective Equipment (PPE) to remove as much of the bulk contamination as possible while still at the fire scene.

I pledge to use wet wipes to remove as much soot as possible from my head, neck, jaw, throat, under arms and hands immediately and while still at the fire scene.

I pledge to wash contaminated clothes as soon as practical. I pledge to shower thoroughly after a fire and change into a clean work uniform.

I pledge to clean all my PPE including gloves, hood, helmet, helmet liner, and turnout/bunker gear immediately after a fire.

I pledge to not take contaminated clothes or PPE home or store it in my vehicle.

I pledge to decontaminate the fire apparatus interior, including my SCBA and other tools used at the fire.

I pledge to keep turnout/bunker gear out of the apparatus interior, living and sleeping quarters.

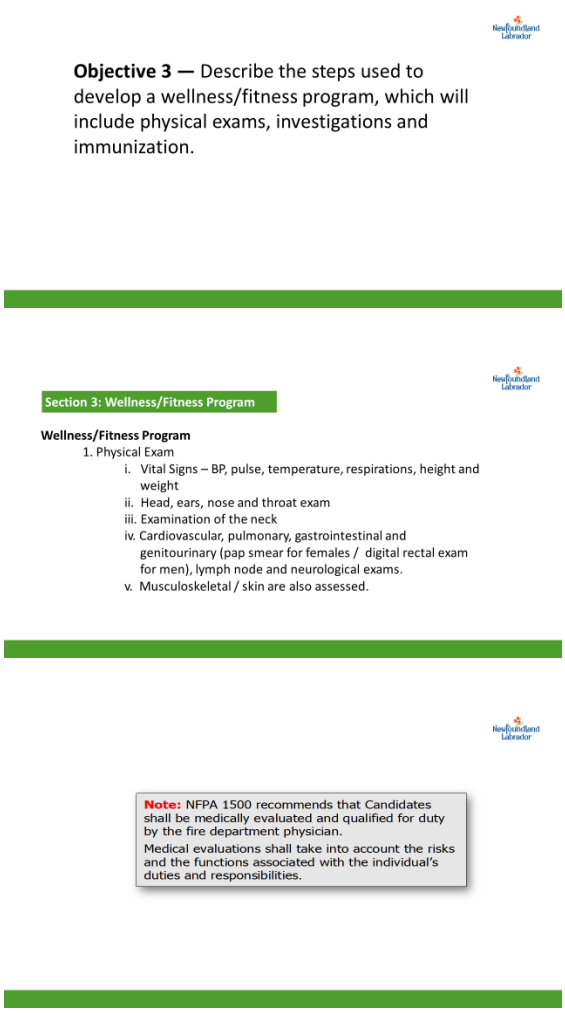
I pledge to make every effort to use sunscreen or sun block on all exposed skin.

I pledge to take responsibility for my health by participating in my annual medical examinations to help with early detection of cancer or other life changing diseases.

Instruction Note: Direct students to the Pledge Form on page 5 of the Booklet

Section 3: Wellness/Fitness Program

pp. Objective 3 — Describe the steps used to develop a wellness/fitness program, which will include physical exams, investigations and immunization.



C. Wellness/Fitness Program

1. Physical Exam

i. Vital Signs – blood pressure and pulse, temperature, respirations, height and weight

ii. Head, ears, nose and throat exam

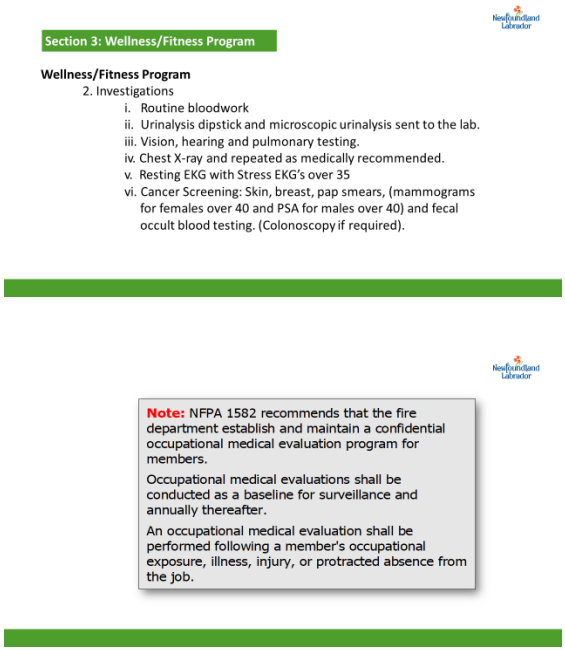
iii. Examination of the neck

iv. Cardiovascular, pulmonary, gastrointestinal and genitourinary (may include pap smear for females or digital rectal exam for men) rectal, lymph node and neurological exams

v. Musculoskeletal and skin are also assessed

Instruction Note: NFPA 1500 recommends that candidates shall be medically evaluated and qualified for duty by the fire department physician.

Medical evaluations shall take into account the risks and the functions associated with the individual's duties and responsibilities.



2. Investigations

i. Routine bloodwork

ii. Urinalysis dipstick and microscopic urinalysis sent to the lab

iii. Vision, hearing and pulmonary testing

iv. Baseline chest x-ray and repeated as medically recommended

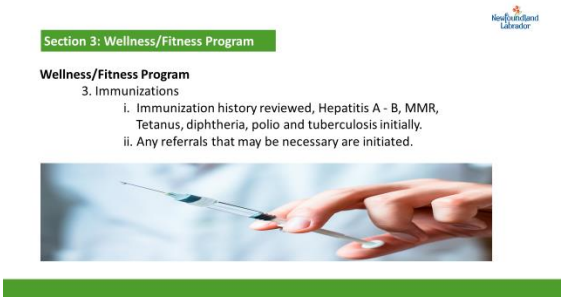
v. Resting EKG with Stress EKG's over 35

vi. Cancer Screening: Skin, breast, pap smears, mammograms for "females over 40" and PSA for "males over 40" and fecal blood testing. Colonoscopy if required

Instruction Note: NFPA 1582 recommends that the fire department establish and maintain a confidential occupational medical evaluation program for members.

Occupational medical evaluations shall be conducted as a baseline for surveillance and annually thereafter.

An occupational medical evaluation shall be performed following a member's occupational exposure, illness, injury, or protracted absence from the job.



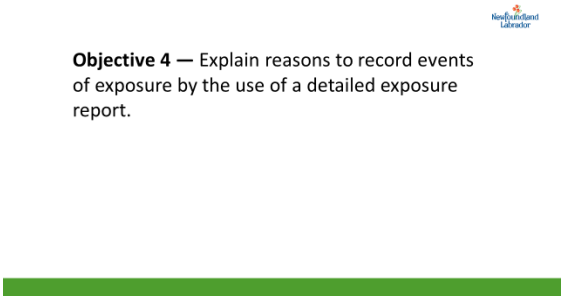
3. Immunizations

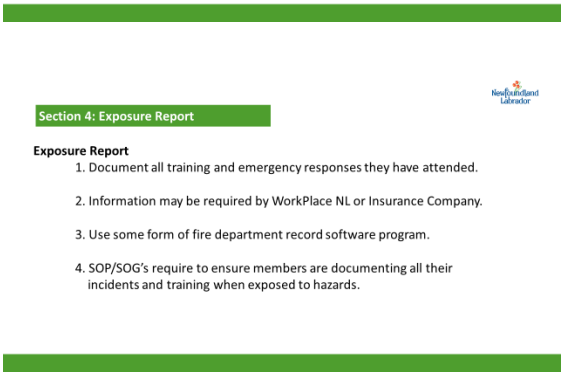
i. Immunization history reviewed, Hepatitis A and B, MMR, Tetanus and diphtheria, polio and tuberculosis initially.

ii. Ensure any referrals that may be necessary are initiated.

Section 4: Exposure Report

pp. Objective 4 — Explain reasons to record events of exposure by the use of a detailed exposure report.





D. Exposure Report

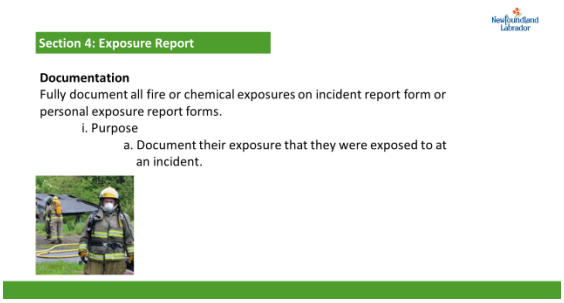
1. It is important for fire department members to document all their training and emergency responses they have attended while in the fire service.

2. Information may be required for a claim submitted to WorkplaceNL or insurance company.

3. Fire departments are encouraged to document each of their Firefighters training and emergency responses using some form of fire department record software program.

4. Fire departments should have a standard operating procedure or guideline (SOP/SOG) to ensure members are documenting all

their incidents and training when exposed to hazards.

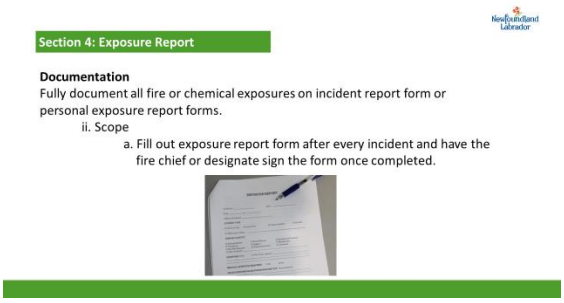


E. Documentation

1. Fully document all fire or chemical exposures on incident report form or personal exposure report forms.

i. Purpose

a. All department personnel who operate in and/or around hazardous work areas or potentially hazardous work areas should document their exposure that they were exposed to at an incident.



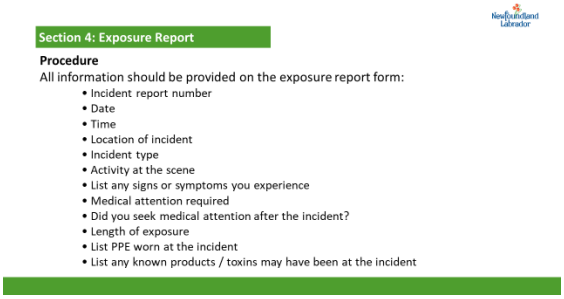
ii. Scope

a. All department personnel who operate in and/or around hazardous work areas should fill out exposure report form after every incident and have the fire chief or designate sign the form once completed.

iii. Procedure

a. All information should be provided on the exposure report form:

- Incident report number
- Date
- Time
- Location of incident
- Incident type
- Activity at the scene

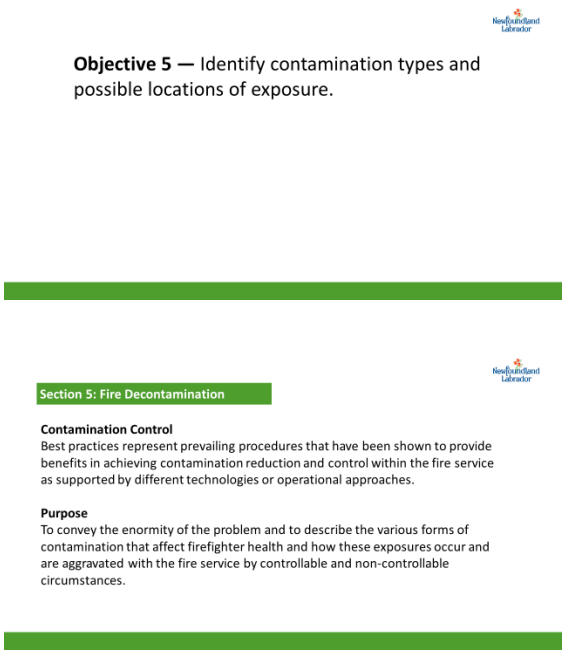


- List any signs or symptoms you experience
- Medical attention required
- Did you seek medical attention after the incident?
- Length of exposure
- List PPE worn at the incident
- List any known hazardous products/toxins may have been at the incident

Instruction Note: Instruct students to review the Exposure Report form on pages 7 & 9 of the booklet and discuss the content.

Section 5: Fire Decontamination

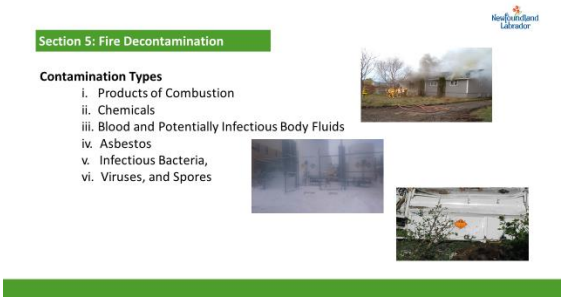
pp. Objective 5 — Identify contamination types and possible locations of exposure.



F. Contamination Control

Best practices represent prevailing procedures that have been shown to provide benefits in achieving contamination reduction and control within the fire service as supported by different technologies or operational approaches.

Purpose: To convey the enormity of the problem and to describe the various forms of contamination that affect Firefighter health and how these exposures occur and are aggravated with the fire service by controllable and non-controllable circumstances.



1. Contamination Types

i. Products of combustion

ii. Chemicals

iii. Blood and potentially infectious body fluids

iv. Asbestos

v. Infectious bacteria

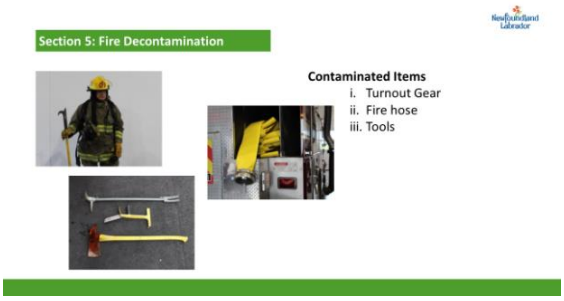
vi. Viruses, and spores

2. Contamination Locations

i. On fireground

ii. Inside apparatus

iii. At fire station



3. Contaminated Items

i. Turnout gear

ii. Fire hose

iii. Tools

4. Examples of Mitigation Methods

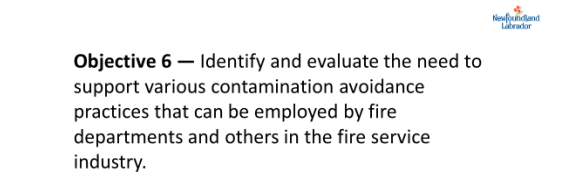
a. On Scene Gross Decontamination

b. Laundering of turnout gear

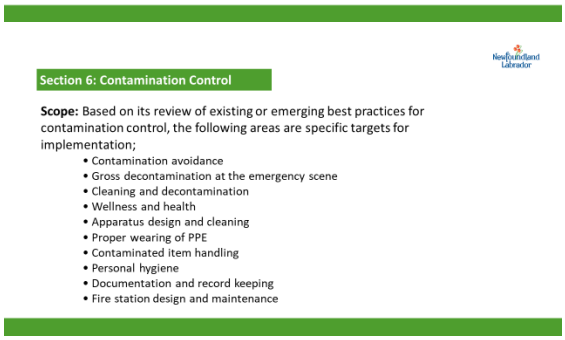
c. Source capture of apparatus diesel exhaust

Section 6: Contamination Control

pp. Objective 6 – Identify and evaluate the need to support various contamination avoidance practices that can be employed by fire departments and others in the fire service industry.

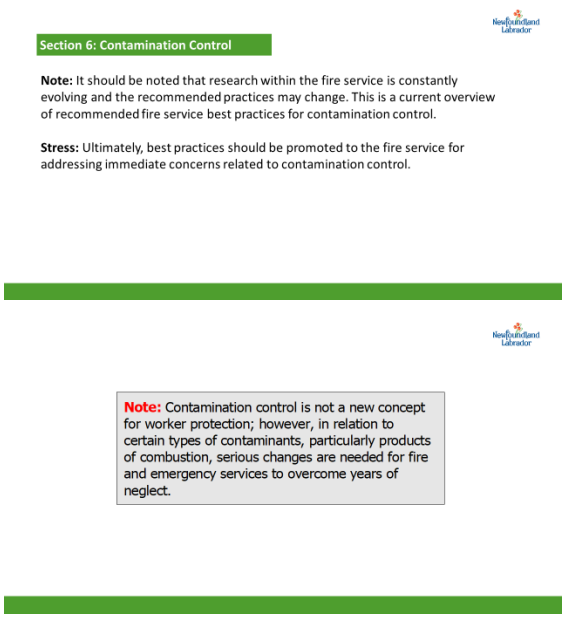


Scope: Based on its review of existing or emerging best practices for contamination control, the following areas are specific targets for implementation:



- Contamination avoidance
- Gross decontamination at the emergency scene
- Cleaning and decontamination
- Wellness and health
- Apparatus design and cleaning
- Proper wearing of PPE
- Contaminated item handling
- Personal hygiene
- Documentation and record keeping
- Fire station design and maintenance

Instruction Note: Instruct students to review the outlined table on pages 15 - 24 of the booklet and discuss the content.



Note: It should be noted that research within the fire service is constantly evolving and the recommended practices may change. This is a current overview of recommended fire service best practices for contamination control.

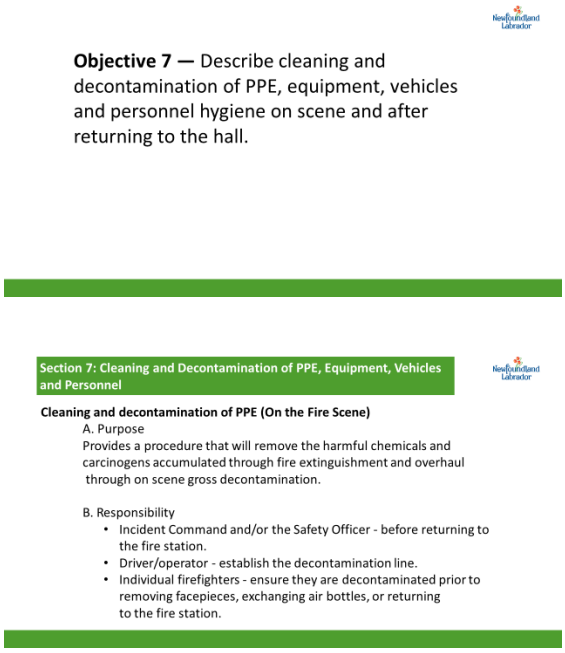
- Contamination avoidance
- Proper wearing of PPE
- Gros Decontamination at the emergency scene
- Contaminated item handling
- Cleaning and decontamination
- Personal Hygiene (Shower within the hour)
- Wellness and Health
- Documentation and record keeping
- Apparatus design and cleaning
- Fire station design and maintenance

Stress: Ultimately, best practices should be promoted to the fire service for addressing immediate concerns related to contamination control.

Note: Contamination control is not a new concept for worker protection; however, in relation to certain types of contaminants, particularly products of combustion, serious changes are needed for fire and emergency services to overcome years of neglect.

Section 7: Cleaning and Decontamination of PPE, Equipment, Vehicles and Personnel

pp. Objective 7 — Describe cleaning and decontamination of PPE, equipment, vehicles and personnel hygiene on scene and after returning to the hall.



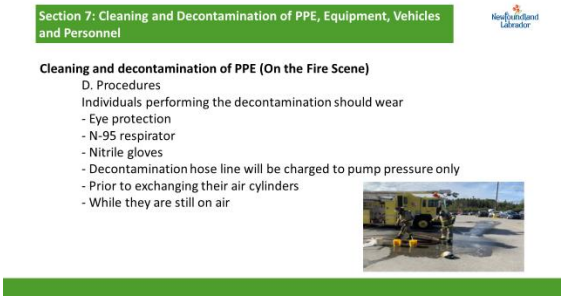
G. Cleaning and decontamination of PPE (On the Fire Scene)

A. Purpose: To provide a procedure that will remove the harmful chemicals and carcinogens that are accumulated through fire extinguishment and overhaul through on scene gross decontamination

B. Responsibility: It should be the responsibility of the Incident Command and/or the Safety Officer to ensure that any necessary decontamination of Firefighters and equipment be completed before returning to the fire station.

It should be the responsibility of the driver/operator of the pumper to establish the decontamination line as soon as possible.

It should be the responsibility of the individual Firefighters to ensure that they are decontaminated prior to removing face pieces, exchanging air bottles, or returning to the fire station.



C. Equipment Needed:

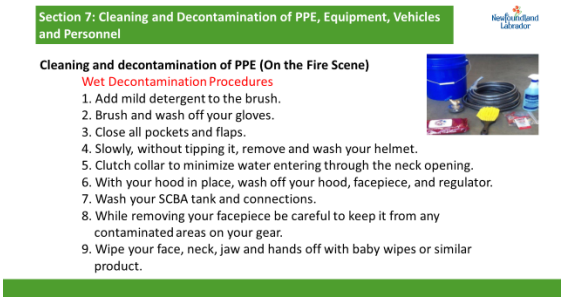
- 5-gallon bucket
- Baby wipes
- Garden hose
- Garden hose to 2 ½" adapter
- Nozzle or wand
- Mild detergent
- Heavy duty brush
- Heavy duty large trash bags

D. Procedures

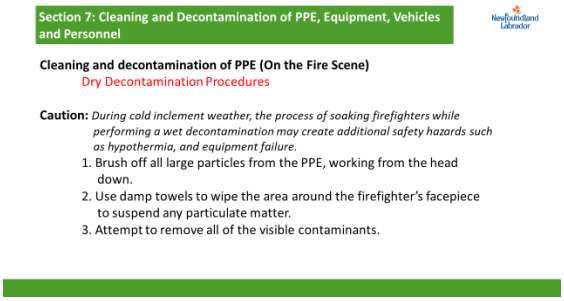
Individuals performing the decontamination should wear at the minimum: eye protection, an N-95 respirator, and latex gloves.
The decontamination hose line will be charged to pump pressure only.
Firefighters should take advantage of this decontamination line prior to exchanging their air cylinders. The hose line will also be used for post incident decontamination.
If practical crews should perform these gross decontamination procedures on each other while they are still on air.
Staying on air will prevent Firefighters from getting contaminants splashed into their face and also protect them from inhaling airborne contaminants that are off gassing from their PPE.

E. Wet Decontamination Procedures

Add mild detergent to the brush.
Brush and wash off your gloves.
Close all pockets and flaps.
Slowly, without tipping it, remove and wash your helmet.



Clutch collar to minimize water entering through the neck opening. With your hood in place, wash off your hood, facepiece, and regulator. Wash your SCBA tank and connections. While removing your face piece be careful to keep it from any contaminated areas on your gear. Wipe your face and hands off with baby wipes or similar product. Pay particular attention to the neck and jaw area.



F. Dry Decontamination Procedures

During cold inclement weather, the process of soaking Firefighters while performing a wet decontamination may create additional safety hazards such as hypothermia, and equipment failure.

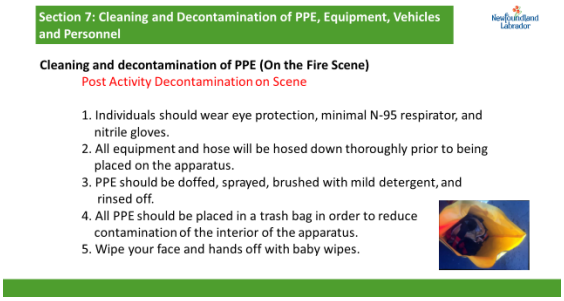
1. Brush off all large particles from the PPE, working from the head down.

2. Use damp towels to wipe the area around the Firefighter's facepiece to suspend any particulate matter.

3. Attempt to remove all of the visible contaminants.

G. Post Activity Decontamination on Scene

1. Individuals should wear eye protection, minimal N-95 respirator, and latex gloves.



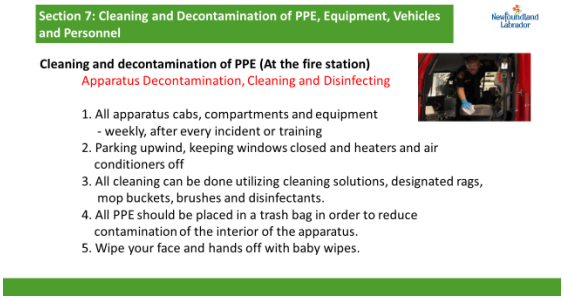
2. All equipment and hose will be hosed down thoroughly prior to being placed on the apparatus.

3. PPE should be doffed, sprayed, brushed with mild detergent, and rinsed off.

4. All PPE should be placed in a trash bag in order to reduce contamination of the interior of the apparatus.

5. Wipe your face and hands off with baby wipes.

Instruction Note: Instruct students to review the Additional Material information on pages 28 – 30 from the HEALTHY IN HEALTHY OUT document.



H. Cleaning and decontamination of PPE (At the Station)

Apparatus Decontamination, Cleaning and Disinfecting:

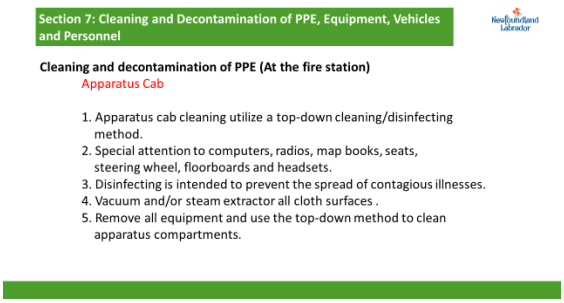
Proper apparatus decontamination, cleaning and disinfecting are vital in limiting Firefighter exposure to contaminants.

1. All apparatus cabs, compartments and equipment should be cleaned weekly and decontaminated after every incident or training that involved contaminants.

2. Parking upwind, keeping windows closed and heaters and air conditioners off during

fireground operations will minimize airborne contaminants from entering the cab.

3. All cleaning can be done utilizing cleaning solutions, designated rags, mop buckets, brushes and disinfectants. HEPA vacuums are useful tools to pick up soot and other loose debris prior to cleaning with wet agents.

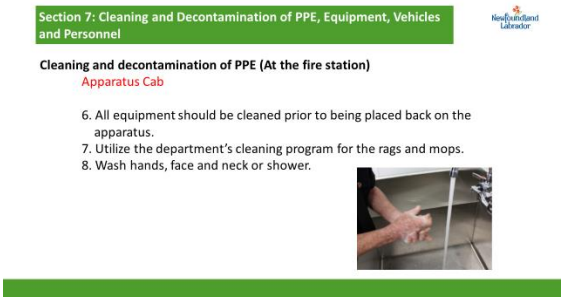


Apparatus Cab

1. Apparatus cab cleaning should utilize a top-down cleaning method followed by disinfecting.

2. Special attention should be paid to computers, radios, map books, seats, steering wheel, floorboards and headsets.

3. Disinfecting is intended to prevent the spread of contagious illnesses.



4. All cloth surfaces should be cleaned using a vacuum and/or steam extractor.

5. Remove all equipment and use the top-down method to clean apparatus compartments.

6. All equipment should be cleaned prior to being placed back on the apparatus.

7. After cleaning is complete, utilize the department's cleaning program for the rags and mops.

8. Wash hands, face and neck or shower.

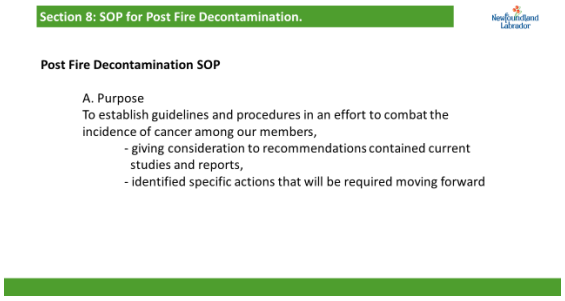
Section 8: SOP for Post Fire Decontamination

pp. Objective 8 - Explain the development of a SOP for post fire decontamination.

Instruction Note: Instruct students to review the sample SOP information on pages 33 – 39 for Post Fire Decontamination.

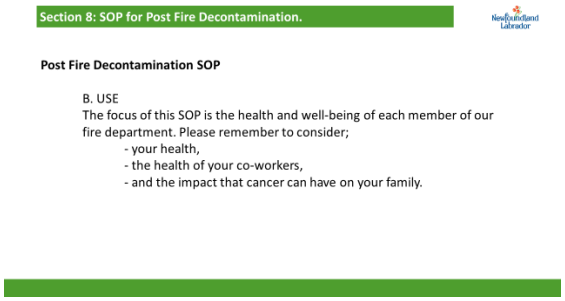
Stress: It is not possible to develop a SOP / SOG for every category listed previously that will fit the operation for every fire department. It is suggested that you use the supporting information from each category to develop your own.

The gross decontamination SOP / SOG is very close to being universal for any department.



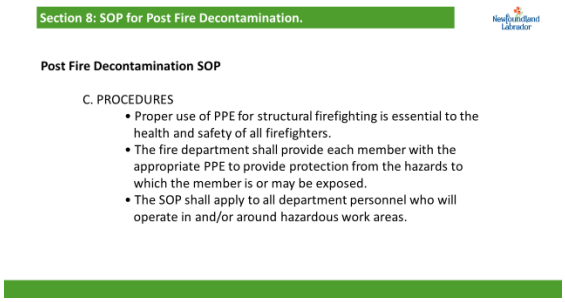
A. Purpose

To establish guidelines and procedures in an effort to combat the incidence of cancer among our members, giving consideration to recommendations contained current studies and reports, the (your fire department name) Fire Department has identified specific actions that will be required moving forward. Most of these actions are common sense issues that should be done routinely. Others require that we re-think how things have been done in the past.



B. USE

The focus of this SOP is the health and wellbeing of each member of our fire department. Please remember to consider your health, the health of your co-workers, and the impact that cancer can have on your family.



C. PROCEDURES

Proper use of personal protective equipment for structural firefighting is essential to the health and safety of all Firefighters.

The fire department shall provide each member with the appropriate PPE to provide protection from the hazards of the expected work area to which the member is or may be exposed.

The SOP shall apply to all department personnel who will operate in and/or around hazardous work areas or potentially hazardous work areas.

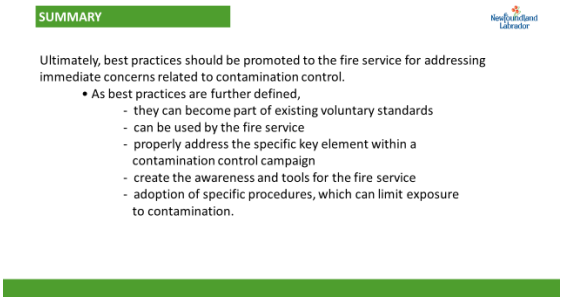
Instruction Note: Guide students through the sample SOP to review the information contained in the document.

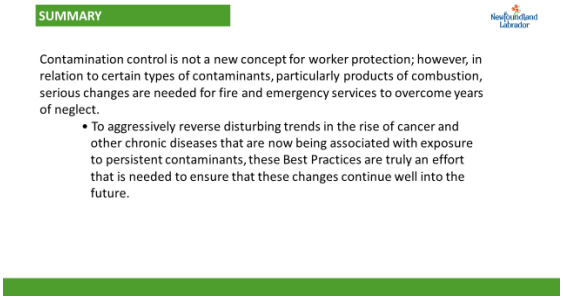
1. General procedures
2. Cleaning processes
3. Responsibility: It should be the responsibility of the Incident Command and/or the Safety Officer to ensure that any necessary decontamination of Firefighters and equipment be completed before returning to the fire station. It should be the responsibility of the driver/operator of the pumper to establish the decontamination line as soon as possible.
   It should be the responsibility of the individual Firefighters to ensure that they are decontaminated prior to removing face pieces, exchanging air bottles, or returning to the fire station
4. Equipment needed
5. Procedures

i. Wet decontamination procedures

ii. Dry decontamination procedures

iii. Post activity decontamination on scene





Summary

Ultimately, best practices should be promoted to the fire service for addressing immediate concerns related to contamination control.

As best practices are further defined, they can become part of existing voluntary standards to be used by the fire service. To properly address the specific key element within a contamination control campaign, it is necessary to create the awareness and tools for the fire service adoption of specific procedures, which can limit exposure to contamination.

Contamination control is not a new concept for worker protection; however, in relation to certain types of contaminants, particularly products of combustion, serious changes are needed for fire and emergency services to overcome years of neglect.

To aggressively reverse disturbing trends in the rise of cancer and other chronic diseases that are now being associated with exposure to persistent contaminants, the best practices in this guide are truly an effort that is needed to ensure that these changes continue well into the future.

QUESTIONS / COMMENTS

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