

# Occupational cancers in firefighting

Brussels November 13<sup>th</sup>



**Tommy Baekgaard Kjaer**

- **Public Firefighter 27 years. Special trained. Now retired from active service.**
- **Education as fire officer and instructor from State Fire service.**
- **Professional rescue diver.**
- **Certified in “Reconstruction and Integration of Traumatic Stress”.**
- **Editor of firefighter magazine for 11 years.**
- **Union leader for 7 years.**
- **Author of numerus articles about occupational health and safety for fire fighters.**
- **Speaker to fire fighter organizations, Universities and Parliament members around the world about occupational health and safety for fire fighters.**
- **Member of deferent boards regarding firefighters safety and health.**
- **Founder of “Danish Firefighter´s Cancer Organization” BFC**
- **Member of honor upon “The Nordic Firefighters” NBS**
- **Winner of “The Danish Community Awards 2015”**
- **CTIF Health Commission, acting chairman.**



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# Occupational cancers in firefighting

- Here and now dangers
- “Long term” dangers. Science and logic?
  - CO damage
  - Psychological impact
  - Cancer
- Prevention
- Presumptive legislation



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## Here and now dangers

“Here and now” safety. -just a few...

- Building collapse.
- Burns- and heat stress.
- CO damage on heart and brain.
- Explosions.
- Too few firefighters on the scene.



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## Here and now dangers

**“Here and now” safety. - prevention...**

- **Knowledge and education.**
- **Training, training and training.**
- **The best safety equipment and Personal Protective Gear.**
- **No cut downs on staff... Add resources.**



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## Here and now dangers

Help firefighters to save lives.

What's good for firefighters is good  
for citizens and society

Make NO mistake about that...



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# Long term dangers CO damage

## CO damage on heart and brain.

- 22.000.000 people world wide.
- 75-80% firefighters.
- Wrong diagnoses.
- Looks like stroke and/or embolism.
- From all fires and off gassing.

### Carbon Monoxide:

#### A Silent Killer

10.8.19

By Robert Bohrer

#### A Case Study

Your fire station gets a call for an "unresponsive person." Both rescue (medic unit) and fire engine get dispatched to this call. While en route to the address, dispatch updates the responding units with information gathered from the caller. The information from dispatch is that the patient is a male in his 50s who is not responding, and the caller is unsure if he is breathing or not. Per the caller, the patient will be located in the driver seat of a vehicle inside of a garage.

Upon arrival of the fire rescue units, they observe multiple three-story condo/town home buildings that are very close to each other with the first floor being the garage. The caller is standing in an alleyway between two of the buildings, waving at the fire rescue personnel. The rescue truck parks between the two buildings in the alley just a bit past an open garage door where the patient is located. As the fire medics get out of the rescue truck, the neighbor (who called 911) frantically runs over to them, saying: "My neighbor is in the car over there, he isn't responding and I don't think he is breathing. I know he has some medical problems, heart issues being one of them, so maybe he had a heart attack. I shook him to try and wake him, but he didn't, and I didn't feel a pulse, but I might have been too nervous to actually feel it."

#### RELATED

##### Construction Concerns: Carbon Monoxide

<https://www.fireengineering.com/2017/11/20/289163/construction-concerns-carbon-monoxide/>

##### Ontario Firefighters Launch Carbon Monoxide Safety Video

<https://www.fireengineering.com/2014/12/03/201933/perth-co-safety/>

##### THE DANGERS OF CARBON MONOXIDE AT THE "ROUTINE FIRE"

<https://www.fireengineering.com/2001/02/01/255598/the-dangers-of-carbon-monoxide-at-the-routine-fire/>

##### FirefighterNation: Near Miss: Post-Fire Metering for Carbon Monoxide

<https://www.firefighternation.com/2017/10/10/near-miss-post-fire-metering-for-carbon-monoxide/>

The fire medics unload the stretcher from the rescue truck and make their way over to the garage. As they approach the building, the small carbon monoxide (CO) detector attached to the EKG monitor on the stretcher begins to alert and beep. All the fire rescue personnel on-scene immediately stop and back away from the garage where the patient is located. Just then, the neighbor who called 911 leans against the rescue truck and begins vomiting, which causes her to fall to the ground.

The company officer immediately has the rescue crew put the vomiting neighbor in the rescue truck for medical treatment and then calls for a hazmat response. While the rescue crew assesses the neighbor, they



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## Long term dangers CO damage

Spot it.

- Headache from ear to ear and neck.
  - Gray color. Pail.
  - Disoriented.
  - Lose consciousness.



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**Long term dangers**

**CO damage**

**No action.**

- **Like stroke.**
- **Loss of memory.**
- **Speech difficulties.**
- **Alzheimer.**
- **Symptoms occurs within 48 hours.**
- **No treatment = too late.**



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# Long term dangers CO damage

## What to do.

- **ALWAYS** oxygen therapy in pressure tank.
  
- **Within four hours.**



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## Long term dangers Psychological impact

### Psychologic damages.

- **PTSD.: 17 - 30% firefighters show symptoms.**
- **Anxiety disorder: 20 - 23% in ambulance personal.**
- **Clinical depression: 8 - 21% in both groups.**



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# Long term dangers Psychological impact

## Why?

- Nature og the job.
- Accumulated incidents.
- Culture in the organization.
- Lack of recognition and backup from the leadership within the organization.



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# Long term dangers Psychological impact

## What to do for prevention.

- Change of attitude in the organization. (Not on the scene).
- Make systems to psychologic defusing and debriefing.
- Make it ok to talk about how you feel.
- We are all the same. Brothers and sisters.



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## Long term dangers Psychological impact

### Most often trigger reason

- Lack of recognition and back cover from the management of the organization.
- Poor psychological work environment.



# We are in this together

## Almost finished:

**Logapp is your personal app to log all your calls in most languages.**

- Exposure
- Psychological impacts
- Health
- Photos and diary

Follow the release on Facebook <https://www.facebook.com/Brandcancer/> or <https://www.brandcancer.dk/>

## Female Fire Fighters

More and more women becomes Fire Fighters and experience deferent challenges in a traditional mans world and they also get female cancers.

Make special platforms for female Fire Fighters



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# Coffee break?



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# Long term dangers Cancer

No longer a debate

Cancers *is* occupational

Cancers kills more firefighters than  
actually “death in the line of duty”.



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# Long term dangers

## Cancer

### IARC group 1 carcinogens from all fires

- Benzene
- PAH's
- Polycyclic Aromatic Hydro Carbons
- Diesel Particulates
- Formaldehyde
- Dioxin
- Soot
- (Asbestos)
- Chemical cocktail 1+1=5



Group 1:  
Known cancer causing  
for humans.

Group 2A: Probably cancer  
causing  
for humans.

Group 2B: (Fire Fighters)  
Possibly cancer causing  
for humans



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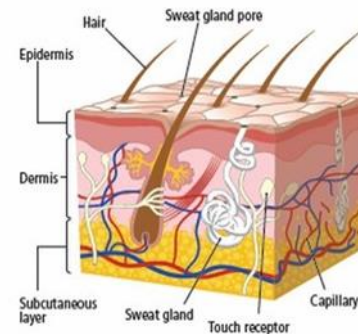
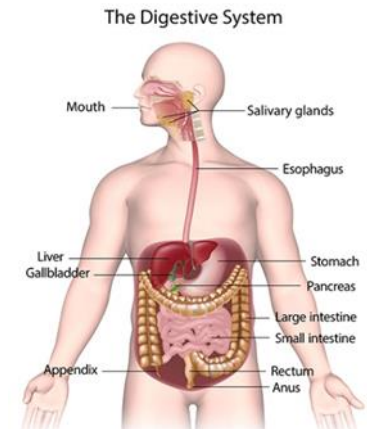
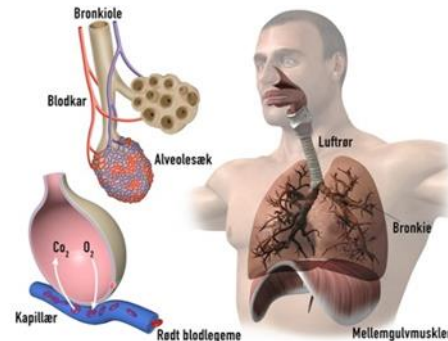
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# Long term dangers Cancer

## Uptake to the body

- Breathing through the lungs
- Eating through the digestive system
- Dermal uptake through the skin
- Warm skin absorb more toxins  
5 degree Celsius = +300%

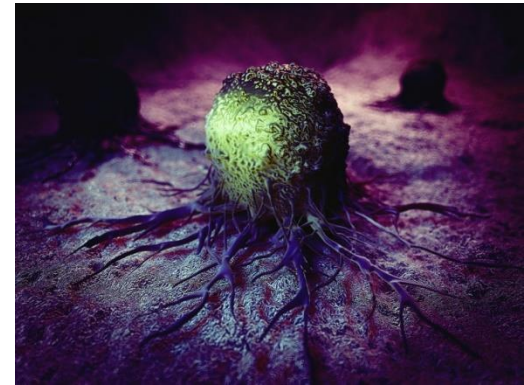


# Long term dangers

## Cancer

**Other impacts that contributes to develop cancers and/or heart diseases**

- **Cross contaminations**
- **Shift work, not enough sleep**
- **Psychological impacts**
- **Physical stress**
- **Poor cleaning of PPE**
- **Poor cleaning of equipment**
- **Incorrect construction of fire stations and cleaning areas**
- **Lack of education and implementation of procedures**
- **Less firefighters to the same amount of fires**



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# Long term dangers Cancer

## Expositor studies:

Show big elevations of soot on the skin and markers in urine and blood and DNA damage in blood cells.

## Epidemiological studies:

Study after study show increased cancer rates in firefighters compared to the general population. It should be les. HWE

<http://www.brandcancer.dk/litteratur>

Firefighters suffer statistically higher rates of multiple types of cancer as compared to the general population.



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# Long term dangers

## Cancer

Type of cancer	SIR	No. of occurrences	95% CI SIR	Excess risk including HWE in %
Birthmark	1,24	70	0,98 – 1,57	39
Prostate	1,10	202	0,95 – 1,26	25
Testicle	1,30	47	0,97 – 1,73	45
Non-Hodgkin's Lymphoma	0,96	37	0,69 – 1,32	11
<b>Head and neck cancer:</b>				
Nasal cavity	1,38	4	0,52 – 3,67	53
Tounge	1,52	12	0,86 – 2,68	67
Oral cavity	0,60	7	0,28 – 1,25	
Salivary glands	1,79	4	0,67 – 4,77	94
Pharynx	0,91	20	0,59 – 1,41	6
Larynx	0,92	16	0,56 – 1,50	7
<b>Cancer in lower respiratory tract and chest:</b>				
Loung	0,91	132	0,76 – 1,07	6
Mesothelioma (asbestosis)	0,65	4	0,24 – 1,73	
Heart and other chest	4,27	3	1,38 – 13,23	442
<b>Colorectal cancer:</b>				
Esophagus	0,99	21	0,65 – 1,53	14
Stomach	1,09	27	0,74 – 1,59	24
Colon	0,73	57	0,57 – 0,95	
Rectum	1,22	64	0,95 – 1,55	37
Liver	0,97	14	0,58 – 1,64	12
Gallbladder and gallbladder passages	0,99	5	0,41 – 2,37	14
Pancreas	1,20	34	0,86 – 1,68	35
Anus	1,31	4	0,49 – 3,49	46
<b>Cancer in urinary tract and genitals:</b>				
Kidney	1,04	32	0,74 – 1,47	19
Renal pelvis og urine leader	1,46	10	0,79 – 2,72	61
Urine bladder	1,09	88	0,89 – 1,35	34
<b>Cancer in the central nervous system:</b>				
Eye	0,88	3	0,28 – 2,74	3
Heart membrane	1,22	9	0,64 – 2,35	37
Brain	0,94	33	0,67 – 1,33	11
Other parts of CNS	1,39	12	0,79 – 2,45	54
<b>Blood and lymphatic system cancer:</b>				
Hodgkin's lymphoma	1,64	13	0,95 – 2,82	79
Bone marrow (myelomatosis)	0,62	8	0,31 – 1,24	
Lymphocytic leukemia	0,91	15	0,55 – 1,46	6
Myeloid leukemia	0,76	9	0,40 – 1,46	
<b>Average under SIR 1.00:</b>				
Average Healthy Workers Effect in %	0,85			15



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# Long term dangers Cancer

## A few studies

- 1986 Eva Støttrup Hansen
- 2002 Guidotti
- 2006 Le Masters
- 2010 IARC
- 2012 Korean study
- 2013 NIOSH
- 2014 Susan Shaw
- 2014 MONASH University study
- 2015 and 2019 Juha Laitinen, Finnish Institute of Occupational Health
- 2017 Danish studies.
- 2017 Miami University.

Accepted 26 March 2017  
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RESEARCH ARTICLE

WILEY

### Firefighter perceptions of cancer risk: Results of a qualitative study

David A. Anderson MA<sup>1</sup> | Tyler R. Harrison PhD<sup>1</sup> | Fan Yang MA<sup>1</sup> | Jessica Wendorf Muhamad PhD<sup>2</sup> | Susan E. Morgan PhD<sup>1</sup>

<sup>1</sup>School of Communication, University of Miami, Coral Gables, Florida  
<sup>2</sup>Department of Public Health Science, University of Miami, Coral Gables, Florida

**Background:** Recent epidemiological research on firefighters indicates an increased incidence of specific types of cancer. Interventions to reduce the fire service yet-to-be known about how firefighters perceive their cancer risk.

**Methods:** Participant observation (150h), n = 100 and focus group (n = 17) data were collected from 15 fire stations in South Florida. Firefighters had at least 3 years of experience; ranks included driver, captain, lieutenant, and assistant captain, with a median age of 33 years.

**Results:** From the qualitative analysis, two major categories (direct and indirect factors) for cancer risk emerged based on participants' notions of cancer risk and cancer prevention behaviors as they relate to firefighting.

**Conclusions:** Firefighters perceive cancer risks as the result of performing essential job tasks and nonessential job tasks related to being a firefighter. The two categories of cancer risks suggest different points of entry for intervention.

**KEYWORDS:** cancer, firefighters, high ability organizations, occupational health, qualitative methodology

**1 | INTRODUCTION**

Firefighters in the United States often are called America's heroes. Their work requires them to head into risky or uncertain situations to save the lives of community members and reduce property damage. Traditionally, the occupational hazards faced by the fire service largely had been limited to consequences surrounding the performance of essential job functions like filling buildings, smoke inhalation; however, today there is growing concern about the risk firefighters face from cancer. While heart disease historically has been the largest cause of morbidity and mortality for firefighters,<sup>1</sup> a number of local, national, and international cancer studies show significant correlations between being a firefighter and having higher risk of developing certain cancers such as digestive, oral, respiratory, and genitourinary system.<sup>2–5</sup> This increased cancer risk among firefighters may be the result of on-scene exposures, as well as exposures at the station from both diesel exhaust<sup>6</sup> and contaminated gear.<sup>7</sup> While research on the links between firefighters and cancer continues to advance, less is known about how firefighters perceive their cancer risk and how they are mitigating that risk through activities such as health promotion, changes in occupational practices, and other risk-reducing behaviors. Practitioners and researchers are better able to develop interventions aimed at firefighters' attitudes and behaviors toward cancer when they understand how firefighters make sense of cancer within their organizational context and membership.

In response to the mounting evidence that occupational exposures increase cancer risk, at least 23 US states have adopted cancer preventive laws.<sup>8</sup> Despite this concern, there are few studies that focus on how firefighters receive, process, and manage information on cancer risk. Jabala, et al<sup>9</sup> found that firefighters exhibit both general concerns about cancer, alongside concerns about cardiovascular disease, the toxic culture of the firehouse and sleep deprivation, and specific concerns about the cancer risk posed by newer burning materials and the dangers associated with bringing gear contaminated from an immediate danger to life and health incident (IDLH) back to the station. While there is a shift toward increased frequency and duration of PPE use,<sup>10</sup> the culture of the firehouse, including individual attitudes and beliefs about relevant issues, can be

### When Flame Retardants Burn: Toxic Exposure and Health Risks to Firefighters

A groundbreaking new study conducted by environmental toxicologist Dr. Susan Shaw and colleagues provides new evidence that brominated flame retardants in burning household materials endanger the health of U.S. firefighters. **This is the first study to measure brominated dioxins and furans in firefighters' blood and shows for the first time that exposure to these chemicals is linked to cancer risk.**

Dr. Susan Shaw, the study's lead scientist, stated, **Our study provides clear evidence that firefighters are exposed to high levels of polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/Fs) in their blood, and that these chemicals are known to be carcinogenic.**

According to Dr. Shaw, the findings underscore the need for stronger regulations to protect not only firefighters but all Americans from exposure to toxic, carcinogenic chemicals in everyday consumer products.

The study, titled "Persistent Organic Pollutants including Polychlorinated and Polybrominated Dibenzop-dioxins and Dibenzofurans in Firefighters' Blood and in Creosotes," can be viewed at: <http://onlinelibrary.wiley.com/doi/10.1002/ajim.12718>.

#### Study Highlights:

- During fires, large amounts of cancer-causing dioxins and furans are produced by combustion of materials containing brominated and chlorinated substrate. **Since firefighters are known to have high rates of cancer, the study focuses on the exposure of firefighters to these compounds while firefighting.**
- Previous studies of firefighters have focused on exposure to chlorinated dioxins and furans. **This pilot study is the first to measure brominated dioxins/furans (PBDD/Fs) in blood of firefighters.** Because homes and offices contain large amounts of brominated flame retardants, we expected to find brominated dioxins/furans in firefighter blood.
- **Brominated dioxin and furan concentrations in firefighter blood were extremely high, and were 21 times more toxic than the chlorinated dioxins and furans.** The authors conclude that brominated dioxins and furans may pose a greater cancer risk to firefighters than previously thought.
- Patterns of the brominated flame retardants, PBDEs in the firefighters were dominated by deca-BDE. A deca-dominated pattern is not found in the general population, but is typical of the pattern found in blood of e-waste recyclers continuously exposed to deca-BDE resulting from open burning of plastic TVs and computers.
- **The firefighters also had elevated levels of two perfluorinated chemicals, PFOA and PFNA. PFOA, a cancer-causing chemical that is linked to the risk of stroke,** was phased out of commerce in 2001, but is released in large amounts from household and building materials during fires.
- **The findings of this pilot study indicate that firefighters are at risk for cancer and serious health effects from their occupational exposure.** A larger study of firefighters is planned.

<http://onlinelibrary.wiley.com/doi/10.1002/ajim.12718>

For more information about this study, contact:  
 Tami Ho, Shaw, [shaw@umiami.ir.vt.edu](mailto:shaw@umiami.ir.vt.edu), February 6, 2014  
 Maine Firefighters' Association, February 4, 2013  
 Maine Firefighters' Association, February 7, 2014  
 Michigan Firefighters' Association, February 3, 2014  
 State of Michigan Firefighters' Association, February 3, 2013  
 State of Michigan Firefighters' Association, February 3, 2013

Dr. Susan Shaw talks to the Maine Fire Chiefs' Association about Fire Fighting and Cancer



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## Long term dangers Cancer

### Remember

- “Science cannot answer all questions, at some point assumptions and logic need to get into play”
- Science answer some questions but raise many more
  - How come that 5 firefighters from the same team at 7 died of cancers?
  - How come that 3 firefighters from the same team gets brain cancer within two years?
  - How come that twin firefighters get cancer as the only persons in their family?
  - How come that very rear cancers strike firefighters?

The list of questions are endless...



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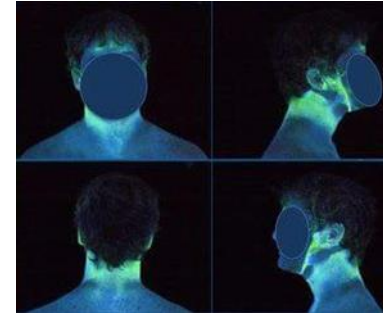
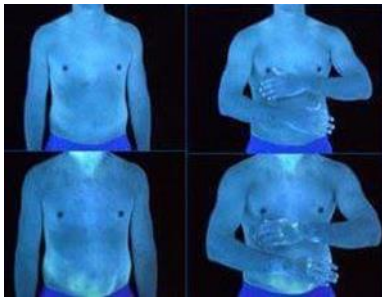
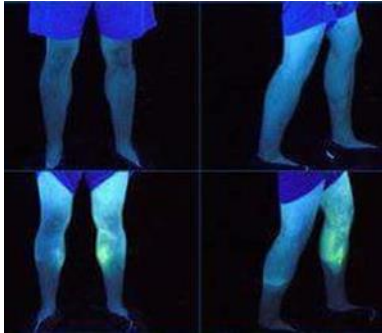
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# Ocopational cancer Prevention

## Always use best PPE



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# Ocopational cancer Prevention

What kind of inner gloves should we use?

Cotton gloves are tested by Researcher Juha Laitinen as inner gloves.

- He found up to 80% reduction of soot getting through to the hands.
- Gloves are disposed after being used in a fire...

A case study with nitrile (the kind used by paramedics) inner gloves has been made by BFFC Belgium in cooperation with l'Institut Scientifique de Service Public (ISSeP) and found.

- Safe to use with temperatures (on the hand skin) up to 110 degree Celsius.
- Nitrile gloves decomposes with temperatures from 350 degree Celsius.

Human skin suffer damage beginning from 53 degree Celsius.

A new danger is electrical car fires. Some batteries contains Magnesium and can, mixed with water, burn through the firefighters gloves and make substantial hand burns.



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# Ocopational cancer Prevention

## Best practice on the scene



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# Ocopational cancer Prevention

**Make procedures on the scene.  
After the fire go to the “Safe zone”**



Safe zone



Help with  
contaminated  
gear



Protect before  
packing used  
gear



All contaminated  
gear picked up and  
handled and  
decontaminated the  
right way



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# Ocopational cancer Prevention

Make procedures on the scene. “Safe zone”



Outside while you shower



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# Ocopational cancer Prevention

1 Make procedures on the scene. "Safe zone"



1



2



3



4



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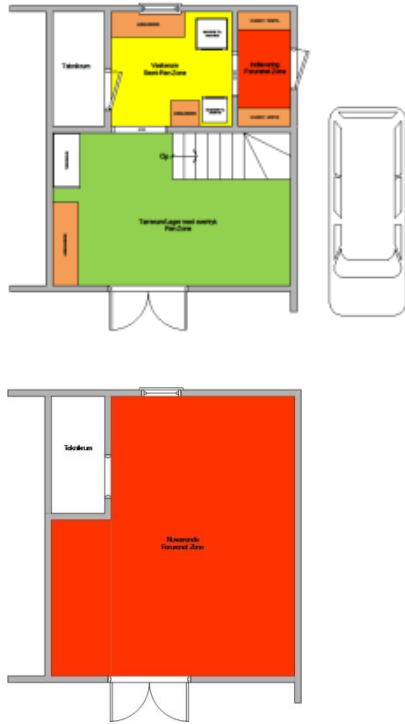
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# Ocopational cancer Prevention

Avoid cross contamination in the fire station using clean not clean arias



1. Unclean vehicles and equipment in (fire engines returning from task)
2. Vehicle washing/ equipment prewash
3. Equipment cleaning and maintenance spaces
4. Showers for crew
5. Clean area: equipment storage, crew spaces, garage etc.

Hollola Rescue Station  
Hollolan pelastusasema

First floor plan 1:200  
Clean frestation schema



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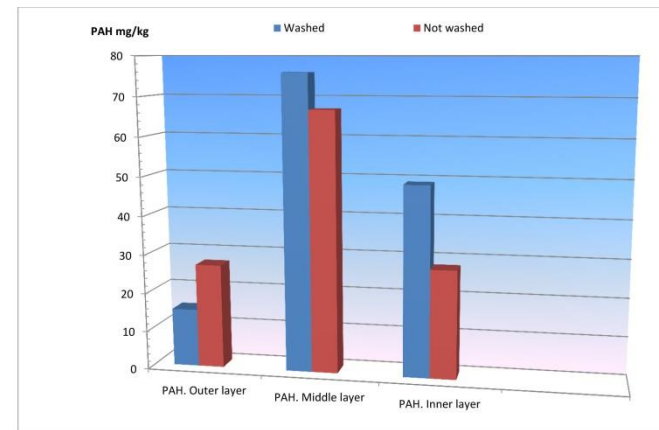
# Ocopational cancer Prevention Washing or decontamination?

## Traditional water washing of contaminated fire fighting garments

Ordinary washing  
machine.  
NO GO



Professional washing  
machine with automatic  
dosing.



The measured PAHs were identified with GC-MS (gas chromatography-mass spectrometry) and quantification was based on added deuterated (deuterium labelled) standards.

The extraction was done with a mixture of acetone and hexane (1:1) and the samples (ca. 0,5 g fabric) were sonicated for 1 hour and shaken overnight.

Two firefighter suit jackets were tested for potentially harmful components. Both jacket samples showed the presence of PAHs and all layers of the tested jackets parts were contaminated. The washing procedure seemed to transfer the PAHs to the inner parts of the jacket. However we need to do more repetitions and more tests to be able to validate the findings.



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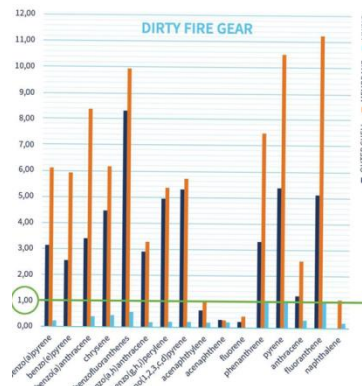
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[INFO@BRANDCANCER.DK](mailto:INFO@BRANDCANCER.DK)



# Ocupational cancer Prevention Washing or decontamination?

## LCO2 decontamination of contaminated fire fighting garments



**STUDY 1: TOXICOLOGICAL PROFILE OF DIRTY FIRE GEAR**  
When taking samples of fire gear that was once exposed to a complex indoor fire, the European notified body for textiles measured an average total PAH value in the membrane between 143,43 mg/kg, which is almost 15 x times higher than the standard.



**STUDY 2: TOXICOLOGICAL PROFILE OF FIRE GEAR AFTER STANDARD CLEANING WITH WATER AND DETERGENTS**  
After cleaning the gear according to a standard cleaning process with water and detergents (18 different programs were tested), there was still an amount left in the gear of 92,28mg/kg, what is 9 x higher than the standard. The contaminants after standard decontamination, the main contamination is still found in the membrane (~90%).



**STUDY 3: TOXICOLOGICAL PROFILE OF FIRE GEAR AFTER SPECIALIZED CLEANING WITH LIQUID CARBON DIOXIDE**  
After specialized cleaning all contaminants are removed of the gear (= FULL DECONTAMINATION).



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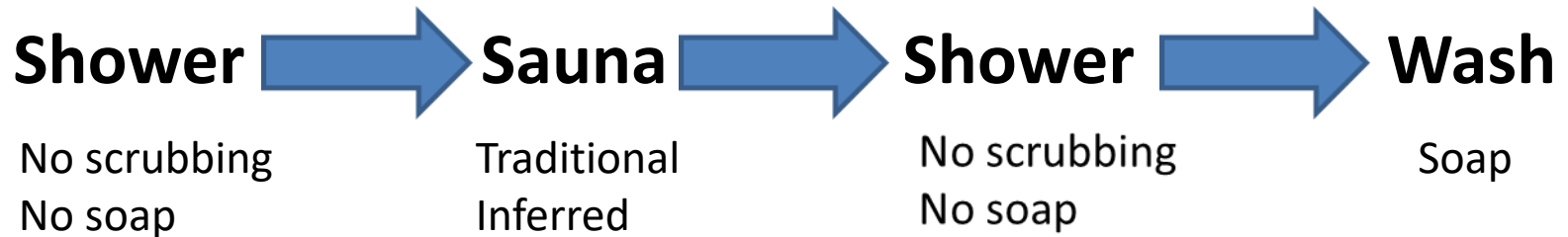
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# Ocopational cancer Prevention

Personal washing after every fire



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## Presumptive legislation

Fire fighters are the modern days chimney sweepers

The first reported occupational cancer by Percivall Pott in 1775 linking soot to cancer led to the first preventive legislation passed by British Parliament in 1778

This *Chimney sweepers act* stated that no boy should be work as chimney sweepers before he was eight years old.

Should be provided with clean clothes and bath.

Should go to church every Sunday.



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# Presumptive legislation

## The 2018 Danish political agreement First step towards presumptive legislation?

### Key points:

- Reduce firefighters exposure to the minimum.
- Define “safe zones”.
- Always use proper protection.
- Strengthened supervision by the Working Environment Authority to ensure that the fire service follow the rules to protect the firefighters from cancer causing carcinogens. In the fire station as well as on the scene.

Aftale mellem regeringen (Venstre, Det Konservative Folkeparti og Liberal Alliance) og Dansk Folkeparti, Socialdemokratiet og Det Radikale Venstre om brandfolks arbejdsmiljø

Aftalepartierne er enige om at forbedre arbejdsmiljøet for brandfolk, der udsættes for skadelige brænderøgspartikler.

Brandfolk må ikke blive syge af at gå på arbejde. Derfor skal beredskabernes og Arbejdstilsynets forebyggende indsats inddrage den nyeste forskning og viden.

Med aftalen skal det sikres, at brandfolks udsættelse for tjærestoffer i røg, partikler og sod i forbindelse med deres arbejde minimeres så meget som muligt. Tjærestoffer er kræftfremkaldende og findes bl.a. i den røg, der udvikles i forbindelse med en brand.

Resultaterne fra forskningsprojektet “Biobrand”, som er gennemført af Det Nationale Forskningscenter for Arbejdsmiljø, viser, at danske brandfolks røgdykkerudstyr beskytter effektivt mod indånding af partikler, men at der er en betydelig partikeludsættelse, når beskyttelsesudstyret tages af i zoner, som ellers anses for sikre.

Arbejdsmiljøet for brandfolk kan forbedres ved at sætte fokus på hygiejnen under og efter brandslukningen, sådan at væremidler håndteres korrekt og uden risiko for at sod kommer på huden.

Resultaterne påviser også et potentiale ved at flytte de såkaldte “sikre zoner” længere væk fra selve branden, så der ikke sker udsættelse for røg, når åndedrætsværnet tages af.

Aftalepartierne anerkender, at **brandfarhedsplaner** er i gang med en opfølgning på resultaterne fra “Biobrand”, herunder en drøftelse af “sikre zoner”, og aftalepartierne mener, at løsningen på denne problematik bør håndteres i branchen.

Aftalepartierne er enige om, at der i forhold til hygiejne skal sættes ind på tre områder:

#### Styrket tilsyn

Aftalepartierne er enige om, at der skal føres et målrettet tilsyn med, at beredskaberne lever op til kravene om håndtering af brandfolks udsættelse for brænderøgspartikler under brandslukningen og ved efterslukningen.



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[www.brandcancer.dk](http://www.brandcancer.dk)

+45 40579507

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# Presumptive legislation

## PRIMARY SITE CANCERS

## MINIMUM PERIOD OF REGULAR EXPOSURE TO THE HAZARDS OF A FIRE SCENE

Primary leukemia	5 years
Primary site brain cancer	10 years
Primary site bladder cancer	15 years
Primary site lung cancer in non-smokers	15 years
Primary site ureter cancer	15 years
Primary site kidney cancer	20 years
Primary site colorectal cancer	20 years
Primary site testicular cancer	20 years
Primary site esophageal cancer	25 years
A primary non-Hodgkin's lymphoma	20 years
A primary site prostate cancer	15 years
A primary site skin cancer	15 years
A primary site breast cancer	10 years
Multiple myeloma	15 years

AR 102/2003 s2;249/2005;74/2010;73/2011



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# Even firefighters needs heroes

We ask the politicians to do the right thing and accept occupational cancers in firefighting.

Firefighters start the job being healthy.

They should end the job being healthy



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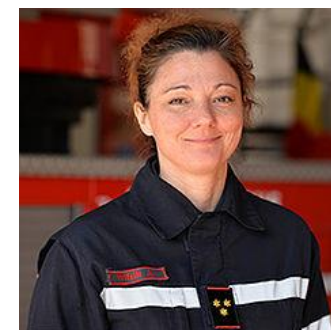
## The Belgium BFFC. One of our sister organizations.



Christophe Van Helmland,  
Founder and president.



Marianne Boucher,  
Founder and treasurer.



Anne Wibin,  
Founder and secretary.  
RedHoseLine asbl-bzw  
Rue des Droits de l'Homme 5  
7190 Ecaussinnes  
0475 48 01 53 ou  
0478 16 38 25  
[RedhoseLine@hotmail.com](mailto:RedhoseLine@hotmail.com)



We are all in this together.  
Toxic smoke does not ask your name, color,  
religion, sexuality, nationality or anything else  
before it gives you the fire-cancer.

Tommy Bækgaard Kjær  
Danish BFC



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+45 40579507

[INFO@BRANDCANCER.DK](mailto:INFO@BRANDCANCER.DK)



Prevention

Thank you  
Questions?



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BFC President  
Tommy Baekgaard Kjaer  
E-mail [tk@brandcancer.dk](mailto:tk@brandcancer.dk)



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