THE TRAGIC IRONY OF OUR JOB!

STUDY AFTER STUDY SHOWS A CONNECTION BETWEEN FIREFIGHTING AND OCCUPATIONAL CANCER

(ŁeMasters, Guidotti, Monash University and Korean Study)

OUR JOB IS GETTING MORE DANGEROUS!

- PLASTICS AND THEIR INCREASED USE IN SOCIETY
- BUILDING MATERIALS AND ALL HOUSEHOLD ITEMS
- ALL AROUND THE WORLD
- CHINA - MAIN PRODUCER AND SUPPLIER
- (International Agency for Research on Cancer and the US National Toxicology Program)
HOW DO WE DEAL WITH THIS ISSUE:

- IN NORTH AMERICA?
- IN AUSTRALIA?
- Europe?

WHO HAS SEEN HUNDREDS OF MY BROTHERS AND SISTERS SUCCUMB TO OCCUPATIONAL CANCER!

HISTORY

IGNORANCE IS BLISS!

1990’S

- USA AND CANADA HAD A LARGE NUMBER OF YOUNG FIRE FIGHTERS DYING OF CANCER
- ALL WERE PREVIOUSLY HEALTHY
- THEY HAD NO FAMILY HISTORY OF CANCER

EARLY SCIENCE

- AWKWARD BUT SHOWED A CONNECTION FIRE FIGHTERS IN METROPOLITAN TORONTO: SUMMARY OF THE MORTALITY STUDY, KRISTAN A. I'Abbe and George A. Tomlinson

April 24, 1992
2000

FIRE FIGHTERS WERE STILL DYING OF CANCER AT ALARMING RATES!

STUDIES START TO GET MORE SOPHISTICATED PRE 2002
- GUIDETTI
- REPORT TO THE WORKERS COMPENSATION BOARD OF MANITOBA BETWEEN SELECTED CANCERS AND THE OCCUPATION OF FIRE FIGHTER, 2002
- BARIS
- COHORT MORTALITY STUDY OF PHILADELPHIA FIREFIGHTERS, 2001
- DEMERS
- Nordic Fire Fighters

FIREFIGHTERS NOT GETTING SUPPORT
FINANCIALLY CHALLENGED

U.S.A.
- ORIGINAL LEGISLATION
- PRESUMPTIVE LEGISLATION
- PENSION
- HEALTH CARE BENEFITS
- NO CONSISTENCY IN SCOPE OR COVERAGE

MANITOBA, CANADA 2002
- FIRST CANADIAN JURISDICTION TO RECOGNIZE THE LINK BETWEEN OCCUPATIONAL CANCER & FIRE FIGHTING
- TREAT OCCUPATIONAL CANCER IN THE SAME WAY AS A DEATH OR INJURY ON THE FIRE GROUND
- CONSISTENT

PRIOR TO 2002
NOT A SINGLE FIRE FIGHTER HAD BEEN COVERED FOR OCCUPATIONAL CANCER
AUSTRALIA - 2011 LEGISLATION

AUSTRALIA

AUSTRALIA

STUNNING SUCCESS
• Australian Senate Report

TODAY

90% OF FIRE FIGHTERS IN CANADA AND AUSTRALIA

NOW HAVE COVERAGE

NOW THE CONNECTION BETWEEN CANCER AND FIREFIGHTING GETS WORLD-WIDE ATTENTION!

W.H.O. (World Health Organization)

IARC (International Agency for Research on Cancer)

THIS IS NOW A GLOBAL PHENOMENON

IARC

• FIRST TIME STUDYING
• CONNECTION TO PLASTICS
• LIST OF CARCINOGENS IN FIRES

• PUT FIREFIGHTING ON THE WORLD MAP
• FIRE FIGHTER CANCER AWARENESS
• CLASSIFYING - 2B

STUDIES

• LEMASTERS - OHIO, U.S.A.

• CANCER RISK AMONG FIREFIGHTERS: A REVIEW AND META-ANALYSIS OF 32 STUDIES
• 2006
STUDIES

• GUIDOTTI - MANITOBA, CANADA
  • REPORT TO THE WORKERS COMPENSATION BOARD OF MANITOBA ON THE ASSOCIATION BETWEEN SELECTED CANCERS AND THE OCCUPATION OF FIREFIGHTER
  • 2002

STUDIES

• KOREAN STUDY
  • CANCER MORBIDITY OF PROFESSIONAL EMERGENCY RESPONDERS IN KOREA
  • 2012

STUDIES

• NORDIC STUDY
  • CANCER INCIDENCE AMONG NORDIC FIREFIGHTERS
  • 2013

STUDIES

• MONASH UNIVERSITY STUDY
  • FINAL REPORT ON AUSTRALIAN FIRE FIGHTERS' CANCER INCIDENCE STUDY
  • LARGEST FIRE FIGHTER STUDY EVER DONE
  • Hot off the Presses (January 2015)

NIOSH

- 30,000 Fire Fighters in Philadelphia, Chicago and San Francisco
- 2014

SCIENCE IS A BIG PUZZLE

EVERY STUDY IS A PIECE OF THAT PUZZLE!
RESULTS/FACTS
FIREFIGHTERS DO HAVE HIGHER RATES OF CERTAIN CANCERS
WE GET CANCER AT A HIGHER RATE THAN THE GENERAL POPULATION
AND WE GET IT EARLIER IN LIFE

RESULTS/FACTS
FIREFIGHTERS COME INTO CONTACT WITH DOZENS OF IARC
CLASS 1, 2A AND 2B CHEMICALS AT EVERY FIRE

THE RESULTS ARE FRIGHTENING
FIRES ARE MORE DANGEROUS TODAY THAN EVER BEFORE DUE TO AN INCREASE IN THE USE OF PLASTICS

THE RESULTS ARE FRIGHTENING
COMPAERED TO EVEN TEN YEARS AGO:
THE USE OF PLASTICS IS INCREASING
- BUILDING MATERIALS
- ELECTRONICS
- FLAME RETARDENTS
- NEW CHEMICAL COMBINATIONS

THE RESULTS ARE FRIGHTENING
PLASTICS AND FIRE RETARDANTS HBO SPECIAL - “TOXIC HOT SEAT”
https://www.youtube.com/watch?v=xDe-LKm9iU

THE RESULTS ARE FRIGHTENING
THE LONGER YOU WORK AS A FIRE FIGHTER THE MORE YOUR CANCER RISK INCREASES
THE RESULTS ARE FRIGHTENING

CHEMICALS COMBINE TO INCREASE EXPOSURE TO CANCER-CAUSING CARCINOGENS

In toxicology, synergism refers to the effect caused when exposure to two or more chemicals results in health effects that are greater than the sum of the effects of the individual chemicals.

1 + 1 = 4

CANADIAN CENTRE FOR OCCUPATIONAL HEALTH AND SAFETY

THE RESULTS ARE FRIGHTENING

WE CANNOT PROTECT OURSELVES FROM THIS DANGER

FIREFIGHTING CLOTHING PROTECTS US FROM AMBIENT HEAT BUT NOT FROM CONTACT WITH CANCER CAUSING CHEMICALS

PARTICULATE INFILTRATION STUDY - 2015

PARTICULATE:

INFILTRATION STUDY:
- IAFF
- Research Triangle Institute
- Game Changer!

PARTICULATE INFILTRATION STUDY

- Tests were done as per Department of Defence
- Florescent Aerosol Screening Test

PARTICULATE INFILTRATE STUDY

SUBJECTS WERE:
- SCBA and turnout gear in a particle laden chamber
- Silica Powder - same infiltration as cancer causing carcinogens.
PARTICULATE INFILTRATION STUDY

- Subject Performed basic Firefighter Movements in controlled Environments

- Subject them went under sensitive Black Lights to expose Particulate infiltrations in gear

- Particles were seen throughout inside of the Gear
- Particles were high in concentrations around the face, neck, Crotch and coat interface areas.
PARTICULATE INFILTRATION STUDY
Conclusively shows pathways for carcinogens

STUDY:
- Conclusively shows that as fire fighters we can not protect ourselves.
- Need for hygiene, clothing turn our maintained and cleaning after each fire.
- The bodies ability to absorb carcinogens increases expediently when skin temperature increases during a fire.

Study:
- As Skin temperature rises so does the Permeability of the skin.
- The Strongest in the Neck, Jaw, Face and Crotch
  (2-4 degrees of Skin temperature = 200-400 times more Permeable)

THE RESULTS ARE UNDERESTIMATED

HEALTHY WORKER EFFECT

PRESumptive LEGISlation

• OUR LEGAL ABILITY TO SUPPORT OUR FELLOW FIRE FIGHTERS
• TREAT CANCER DEATHS AS LINE OF DUTY DEATHS

PRESumptive LEGISlation

NOT A NEW IDEA
PERCIVAL POTT
FIRST TO IDENTIFY A CONNECTION BETWEEN SOOT AND CANCER

PERCIVAL POTT
CHILDREN WORKED AS CHIMNEY SWEEPS IN THE 1700'S

PERCIVAL POTT
HIS WORK RESULTED IN THE CHIMNEY SWEEPER ACT OF 1786

FIRE FIGHTERS ARE PRESENT DAY CHIMNEY SWEEPS

PRESUMPTIVE LEGISLATION
REVERSES LEGAL ONUS ONTO THE EMPLOYER TO PROVE THAT THE CANCER IS NOT CONNECTED TO FIREFIGHTING

DOES FIREFIGHTING CAUSE CANCER?
Recent epidemiological studies and meta-analyses have documented increased risk for several site-specific cancers in firefighters.

In 2007, the International Agency for Research on Cancer (IARC) classified firefighting as possibly carcinogenic to humans (Group 2B).

In 2015, IARC considering upgrade of classification to probably carcinogenic to humans (Group 2A).

"Young firefighters are developing far more aggressive types of cancers, such as brain cancers, at an earlier age than the general population.

"Because of the multiple exposures and the multiple routes of exposure—they inhale carcinogen and absorb them through the skin—it is also highly unlikely for firefighters to get only one type of cancer." - LeMasters et al. (2006)

Because of the multiple exposures and the multiple routes of exposure—
- Inhalation
- Ingestion
- Skin Absorption

New Chemical Hazards in Today's Fire Environment

- Halogenated flame retardants, per and polyfluorinated alkyl substances in household materials
- Foam furniture, carpets, mattresses, plastics, TVs, computers, electronics, building insulation

Routes of Exposure

- Inhalation
- Ingestion
- Skin Absorption
Heat Increases Skin Absorption

"Skin's permeability increases with temperature and for every 5 degree increase in skin temperature, absorption increases 400%"  
(Romonchuk and Bunge 2004; Danaon et al. 1986)

Contaminated Hoods After One Fire

Extended Exposure (Inhalation and Dermal) from Contaminated PPE

"Bunker gear can go unwashed for months at a time, even after significant fires."
Inhalation (off-gassing) And Transdermal exposure during and after fires
Smoke and soot on gloves 100X higher than hoods.

PRESumptive Legislation

Acts As A Great Educator

Presumptive Legislation

Allows Us To Create A Protocol To Minimize Our Cancer Risks Where We Can

Conclusion

• Anecdotal Medical Information From Doctors Around The World

Conclusion

• Our Workplace Is Killing Us
• We Have No Way To Fully Protect Ourselves
• The Situation Is Getting Worse
CONCLUSION

GOVERNMENTS AND POLITICIANS NEED TO ADMIT THERE IS A PROBLEM

THIS PRESENTATION IS BEING DONE IN MEMORY OF THE MANY FIRE FIGHTERS WHO HAVE DIED OF OCCUPATIONAL CANCER WITH NO SUPPORT OR ACKNOWLEDGMENT FROM THEIR POLITICAL LEADERS