

**Legislative Report Prepared for The Joint Legislative Audit Committee in Compliance  
with ARS 23-1102 through 23-1104 Regarding the Amendment of Current Legislation and  
Expansion of Arizona Cancer Presumption Legislation 23-901.01.**

Prepared for The Joint Legislative Audit Committee in Compliance with ARS 23-1102 through 23-1104 Regarding the Amendment of Current Legislation and Expansion of Arizona Cancer Presumption Legislation 23-901.01.

The current cancer presumption statute is in place to protect Arizona Firefighters and Peace Officers from certain cancers. The cancers that are covered in the current limited statute are the following: brain, bladder, rectal or colon cancer, lymphoma, leukemia or aden carcinoma or mesothelioma of the respiratory tract (Arizona State Legislature, 2016). The purpose of this report is to expand the number of cancers that firefighters and peace officers are at risk of developing based on new research findings.

ARS 23-1102. Workers' compensation presumptions of compensability; report

A person that advocates a legislative proposal shall submit a report to the joint legislative audit committee as prescribed in this article, if the legislative proposal if enacted would do either of the following:

1. Mandate that an insurer or self-insured employer deem that a disease or condition has arisen out of employment, including establishing a presumption of compensability.
2. Substantially modify a statute that establishes a presumption of compensability for a disease or condition.

**23-1103 A. The report shall include all of the following:**

**1. Scientific evidence that shows the extent to which:**

**(a) Peer reviewed scientific studies exist that document a causal relationship that a specific disease or condition has been demonstrated to have arisen out of employment.**

— Three key studies provide the scientific basis regarding increased cancer risk from the occupation of fire fighting. The LeMasters meta-analysis, a study by the National Institute for Occupational Safety and Health (NIOSH) and a study by Pukkala and colleagues of fire fighters in Nordic countries provide significant information about cancer risks in firefighters.

— 1) **The LeMasters meta-analysis** was a widely reviewed report developed by environmental health researchers at the University of Cincinnati. This study, published in 2006, was a comprehensive investigation of cancer risks associated with firefighters using a research technique known as “meta-analysis.” Meta-analysis is a quantitative statistical analysis method that pools data from separate but similar experiments or studies. Using meta-analysis, researchers are able to test the pooled data for statistical significance which is better able to detect increased risk.

— LeMasters and her colleagues combined data from 32 smaller studies of firefighters for 20 different cancer types. They classified the cancers into three categories: probable, possible, or unlikely. The study identified 10 cancers that have significant increases in firefighters.

Firefighters' Increased Risk of Developing Cancer Compared to the General Population:

- i) **Testicular cancer (102% greater risk)** \*proposed
- ii) **Multiple myeloma (53% greater risk)** \*proposed
- iii) **Non-Hodgkin lymphoma (51% greater risk)** \*proposed
- iv) **Skin cancer (39% greater risk)** \*proposed
- v) **Prostate cancer (28% greater risk)** \*proposed
- vi) **Malignant melanoma (32% greater risk)** \*proposed
- vii) Brain cancer (32% greater risk) covered

- viii) Rectum (29% greater risk) covered
- ix) **Stomach** (22% greater risk) \*proposed
- x) Colon cancer (21% greater risk) covered

—2) **The NIOSH study** examined cancer risks in 29,993 career firefighters from three large U.S. cities: San Francisco, Chicago, and Philadelphia (Daniels et al., 2013).

The study found that firefighters have a 14% increased risk of dying from cancer compared to the general population. The NIOSH study has several strengths:

- i) It includes a large study population. This was a pooled analysis of 30,000 career firefighters from three different geographically diverse cities.
- ii) It covered a long study period. Data was collected from 1950 through 2009. The study also found that fire fighters have a statistically significant increased risk of dying from seven different types of cancer compared to the general population:
  - i) Mesothelioma (100% increase) covered
  - ii) Rectum (45% increase) covered
  - iii) **Buccal/pharynx** (40% increase) \*proposed
  - iv) **Esophagus** (39% increase) \*proposed
  - v) **Large intestine** (31% increase) \*proposed
  - vi) **Kidney** (29% increase) \*proposed
  - vii) **Lung** (10% increase) \*proposed

This study also found excess bladder (covered) and **prostate** cancer (proposed) incidence among firefighters less than 65 years of age. The prostate cancer excess is limited to fire fighters 45 – 59 years of age. These findings are consistent with the the Nordic study and the early onset of these cancers suggests an association with firefighting.

—3) **The Nordic study** studied the likelihood of cancer risk in a cohort of 16,422 firefighters from five Nordic countries (Pukkala, et al., 2014). Cancer incidence was assessed by linking national cancer registries to census data on occupations from 1961 – 2005. It found statistically significant increased risk for developing the following cancers:

- i) **Prostate** cancer (13% increase) \*proposed  
The highest risk was found among firefighters 30 – 49 years old: (159% increased risk).
- ii) **Malignant melanoma** (25% increase) \*proposed
- iii) **Non-melanoma skin** cancer (33% increase) \*proposed
- iv) Mesothelioma in firefighters over 70 years of age (159% increase) covered until 65
- v) Lung adenocarcinoma (29% increased risk) covered

**(b) The centers for disease control and prevention have determined that a disease or condition is acquired or transmitted.**

The Center for Disease Control and Prevention (CDC) have direct links to NIOSH and highlight, explain, and provide additional blogs (NIOSH Science Blog, 2016) that provides the information about Firefighter Cancer and the links between firefighters acquiring higher rates of cancers.

**(c) Alternative exposure patterns exist for acquiring or transmitting a disease or condition other than occupational.**

Alternative exposure patterns for cancer exist for acquiring the disease and conditions associated with it. For example, there is a casual link between smoking tobacco and cancers of the lung. In the case of Arizona Cancer Presumption Statutes; however, there are built in

measures that would disqualify tobacco users from qualifying for workers' compensation presumption if they smoked tobacco. Arizona State Legislature (2016) 23-901.01 states the presumption "does not apply to cancers of the respiratory tract if the firefighter or peace officer has smoked tobacco products" (Subsection D). Another factor is age and higher rates of cancers are associated with age. Again, this factor is addressed in the current presumption statute because the presumption only "applies to former firefighters and peace officers who are sixty-five years of age or younger" (Subsection C). A final example is a pre-existing condition and once again the current presumption statute requires a pre-employment physical to detect a pre-existing condition. The first requirement of subsection B(1) reads "The firefighter or peace officer passed a physical examination before employment and the examination did not indicate evidence of cancer".

## **2. Financial information to indicate the extent to which:**

### **(a) The mandate may cause an employer or insurance carrier to pay a workers' compensation claim for a nonwork related disease or condition.**

Arizona statute builds in a number of requirements that limit the number of workers' compensation claims; thereby, reducing the insurance carrier to pay workers' compensation for non-work related disease. The current statute (under subsection B, C, D, and the definitions) state that all the following requirements must be met: the firefighter or peace officer had a physical exam prior to employment, worked at least five years of hazardous duty, was exposed to known carcinogens, and is of sixty-five years of age or younger. The presumption is nullified if the individual used tobacco products and the presumption applies to full-time employees only.

### **(b) The mandate may increase costs to self-insured employers or premiums charged by insurance carriers.**

Quantifying the cost of this presumption legislation has proven difficult. The National Council on Compensation Insurance Inc (NCCI) explains the main reason is a lack of data on workers' compensation reported for firefighters because most are employed by state municipalities. Another roadblock is the inability to determine between presumption claims and the claims that would go through under general compensability standards. The long latency period of cancer also presents an issue with estimations. There is no hard evidence of a substantial cost increase with the addition of the associated cancers to Arizona's Cancer Presumption Statutes. Moreover, due to Arizona's built in controls and requirements, the state is protected, especially compared to states that have a full range of cancer presumption laws without the corresponding requirements.

## **3. An explanation of why existing compensability methods are inadequate to accurately determine if a disease or condition is acquired or transmitted in the course of employment.**

Existing compensability methods are inadequate to accurately determine if cancer is acquired over the course of employment due to the nature and variables that develop into the disease. The latent nature of disease process differ from worker's compensability injuries such as a specific back or knee injury which can be pinpointed to an exact moment in time. The frequency and level of exposure to cancer causing carcinogens impact the development of cancer over the course of a career. Disease has a slower process and it is more challenging to pinpoint the exact exposure that caused the cancer. It is more likely the combination of multiple exposures over the course of a career lead to cancer.

### **B. The report shall address the specific language of the legislative proposal.**

A number of additional cancers should be added to Arizona's Cancer Presumption Statutes to provide comprehensive coverage of all cancers associated with the profession based on the current research. We propose the additional cancers are added to the existing Statute 23-901.01, under subsection B:

#### **Multiple Myeloma**

**Non-Hodgkins Lymphoma  
Prostate  
Testicular  
Skin Cancer  
Malignant Melanoma  
Stomache  
Buccal/Pharynx  
Esophagus  
Large Intestine  
Kidney  
Lung.**

**23-901.01. Occupational disease; proximate causation; definitions**

...

B. Notwithstanding subsection A of this section and section 23-1043.01, any disease, infirmity or impairment of a firefighter's or peace officer's health that is caused by brain, bladder, **BUCCAL CAVITY AND PHARYNX, ESOPHAGUS, LARGE INTESTINE, LUNG, KIDNEY, PROSTATE, SKIN, STOMACH, TESTICULAR**, rectal or colon cancer, lymphoma, **NON-HODGKIN'S LYMPHOMA**, leukemia, **MULTIPLE MYELOMA, MALIGNANT MELANOMA** or aden carcinoma or mesothelioma of the respiratory tract and that results in disability or death is presumed to be an occupational disease as defined in section 23-901, paragraph 13, subdivision (c) and is deemed to arise out of employment. The presumption is granted if all of the following apply:

1. The firefighter or peace officer passed a physical examination before employment and the examination did not indicate evidence of cancer.
2. The firefighter or peace officer was assigned to hazardous duty for at least five years.
3. The firefighter or peace officer was exposed to a known carcinogen as defined by the international agency for research on cancer and informed the department of this exposure, and the carcinogen is reasonably related to the cancer.

...

C. A person that does not submit a report as prescribed in this article is not subject to any civil sanction or criminal penalty.

**23-1104. Report procedures and deadlines**

A report must be submitted to the joint legislative audit committee on or before September 1 before the start of the legislative session for which the legislation is proposed. The joint legislative audit committee shall assign the written report to the appropriate legislative committee of reference established pursuant to section 41-2954. The legislative committee of reference shall hold at least one hearing and take public testimony after receiving the report. The legislative committee of reference shall study the written report and deliver a report of its recommendations to the joint legislative audit committee, the speaker of the house of representatives, the president of the senate, the governor and the commission on or before December 1 of the year in which the report is submitted.

## References

Arizona State Legislature (2016). *ARS 23-901.01* Retrieved from

<http://www.azleg.gov/FormatDocument.asp?inDoc=/ars/23/00901-01.htm&Title=23&DocType=ARS>

Centers For Disease Control and Prevention (2016). . Is There a Link Between Firefighting and Cancer? – Epidemiology in Action. *NIOSH Science Blog* Retrieved from

<http://blogs.cdc.gov/niosh-science-blog/2014/12/17/cancer-ff/>

Daniels RD, Kubale TL, Yiin JH, et al. (2013) Mortality and cancer incidence in a pool cohort of US firefighters from San Francisco, Chicago, and Philadelphia (1950-2009). *Occup Environ Med*. Published Online First: [14 Oct 2013] doi:10.1136/oemed-2013-101662

LeMasters, G.K., Genaidy, A.M., Succop, P., Deddens, J., Sobeih, T., Barriera-Viruet, H., et. al. (2006) Cancer Risk Among Firefighters: A Review and Meta-analysis of 32 Studies *JOcup Environ Med*.. Nov;48(11):1189–202.

National Council on Compensation Insurance Inc. (2014). *NCCI White Paper on Firefighter Presumption Coverage*. Retrieved from

[http://kslegislature.org/li\\_2014/b2013\\_14/committees/ctte\\_s\\_cmrce\\_1/documents/testimony/20140218\\_07.pdf](http://kslegislature.org/li_2014/b2013_14/committees/ctte_s_cmrce_1/documents/testimony/20140218_07.pdf)

Pukkala, E, et al. (2014). Cancer Incidence among firefighters: 45 years of follow-up in five Nordic countries *JPccup Environ Med* 71:398-404.