

Firefighter's Cancer Study Linkage Update

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COMPREHENSIVE CANCER CENTER
UNIVERSITY OF MIAMI HEALTH SYSTEM

Objective of this study was to update a previous firefighter linkage initiated 15 years ago

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FAST TRACK ARTICLE

Cancer Incidence in Florida Professional Firefighters, 1981 to 1999

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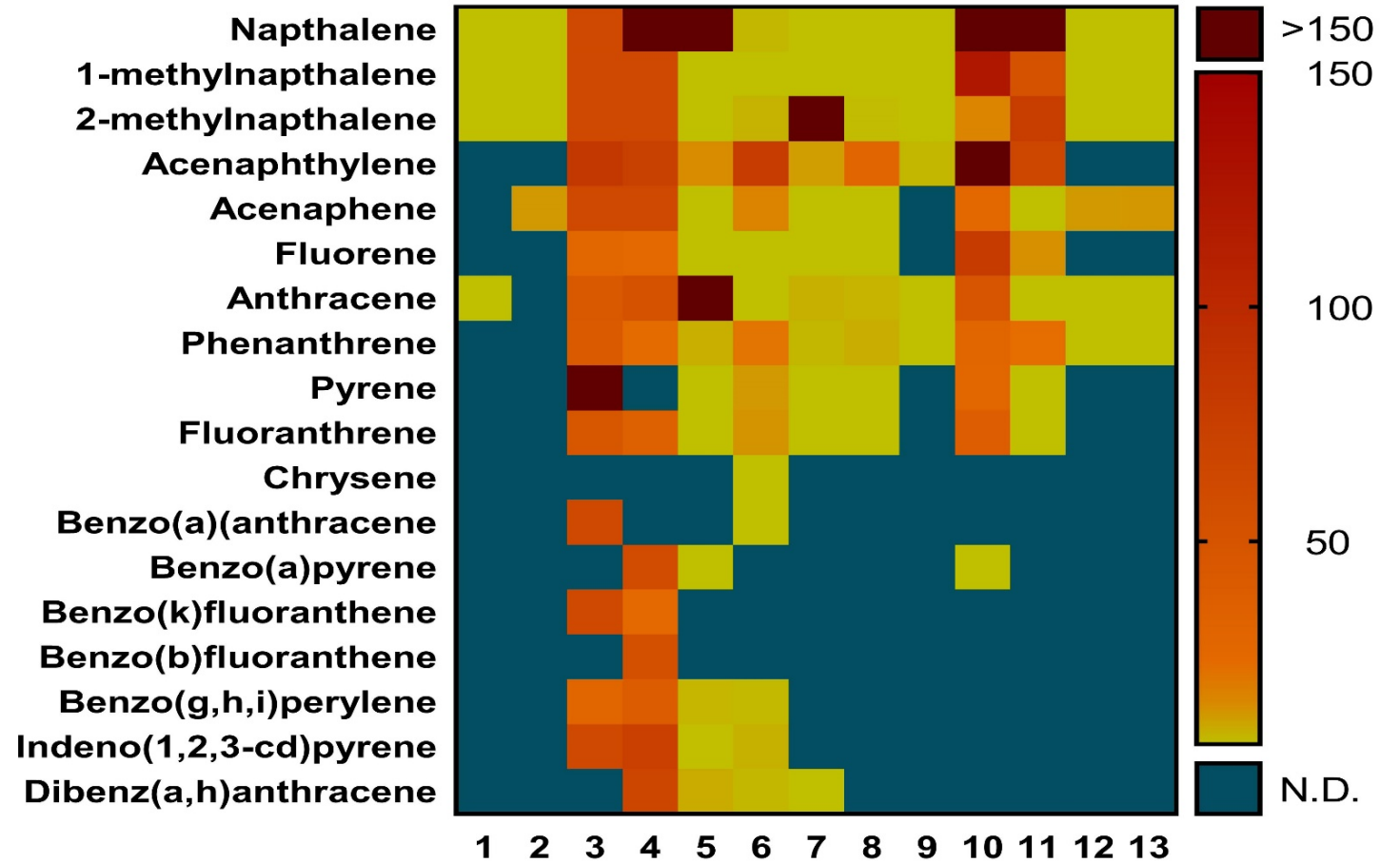
Edward Trapido, ScD

Terence A. Gerace, PhD

***Objective:** The objective of this study was to examine the cancer risk associated with firefighting. **Methods:** Standardized incidence ratio analysis (SIR) was used to determine the relative cancer risk for firefighters as compared with the Florida general population. **Results:** Among 34,796 male (413,022 person-years) and 2,017 female (18,843 person-years) firefighters, 970 male and 52 female cases of cancer were identified. Male firefighters had significantly increased incidence rates of bladder (SIR = 1.29; 95% confidence interval = 1.01–1.62), testicular (1.60; 1.20–2.09), and thyroid cancers (1.77; 1.08–2.73). Female firefighters had significantly increased incidence rates of overall cancer (1.63; 1.22–2.14), cervical (5.24; 2.93–8.65), and thyroid cancer (3.97; 1.45–8.65) and Hodgkin disease (6.25; 1.26–18.26). **Conclusions:** Firefighting may be associated with an increased risk of selected site-specific cancers in males and females, including an overall increased cancer risk in female firefighters. (J Occup Environ Med. 2006;48:883–888)*

Firefighters are exposed to numerous carcinogens via dermal, respiratory and ingestion routes

OSHA guidelines Permissible exposure limit (PEL)	
PAHs	35.4 ppb
PAHs in water	0.2 ppb (EPA)

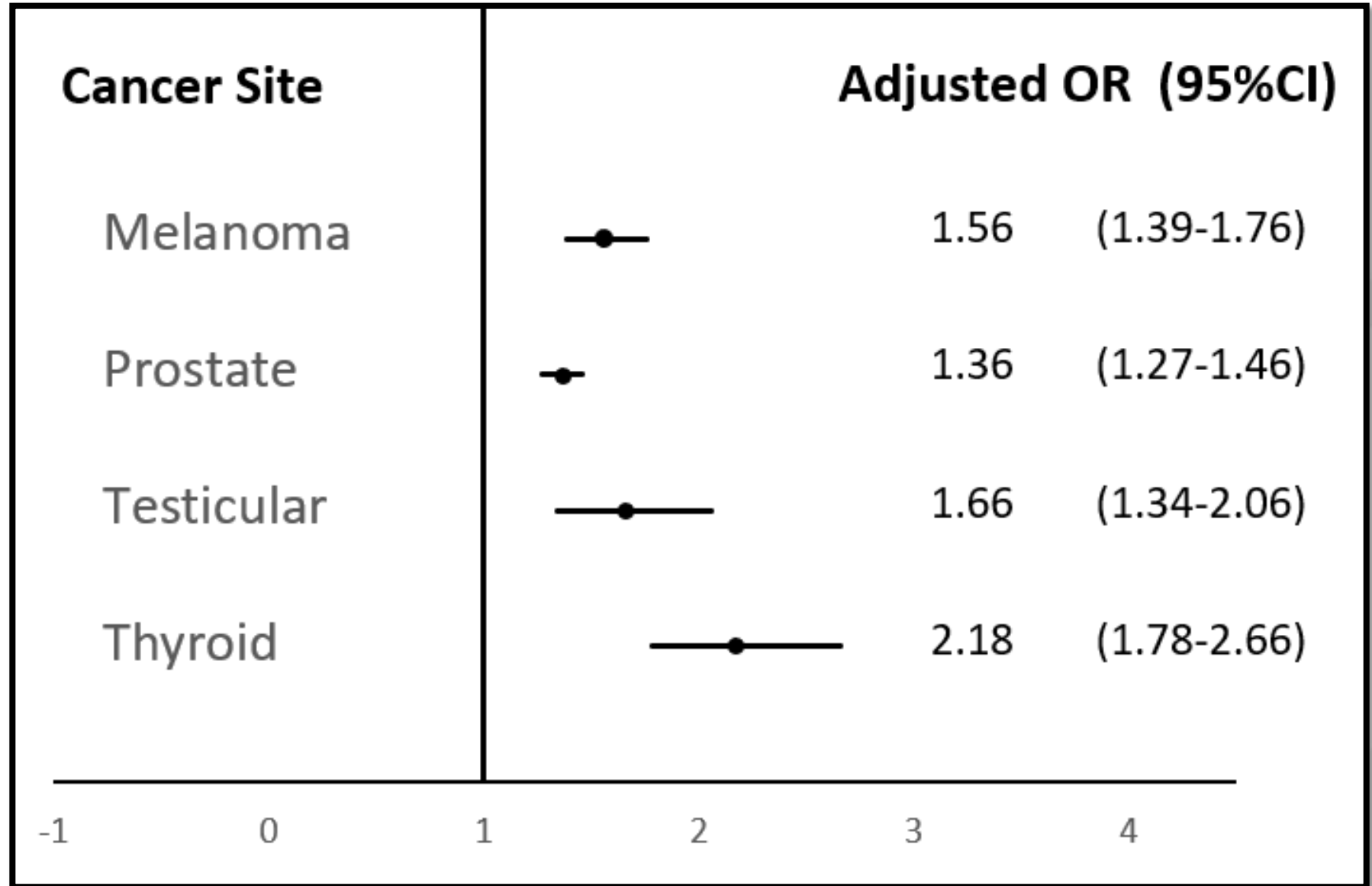


The firefighter-associated cancer list expanded in 2019

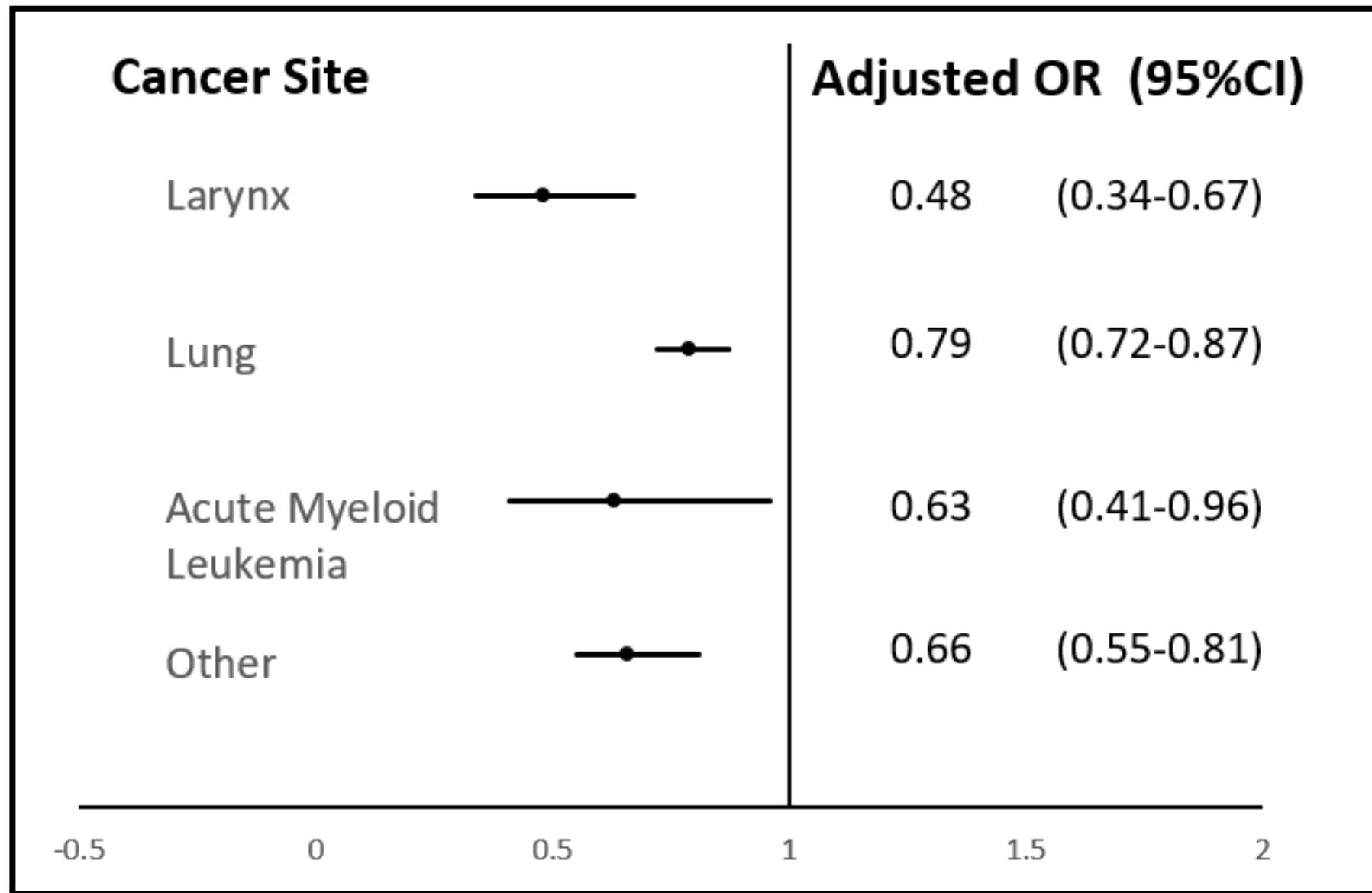
Cancer Site	LeMasters et al Meta-Analysis 2006	IARC Report 2010	Jalilian et al Meta-Analysis 2019
Prostate	Probable	✓	Incidence
Testicular	Probable	✓	Incidence
Non-Hodgkin's Lymphoma	Probable	✓	Mortality
Multiple Myeloma	Probable		
Rectum	Possible		Incidence + Mortality
Colon	Possible		Incidence
Melanoma	Possible		Incidence
Thyroid			Incidence
Bladder			Incidence
Pleura			Incidence

Int J Cancer. 2019 Feb 8. doi: 10.1002/ijc.32199. [Epub ahead of print]

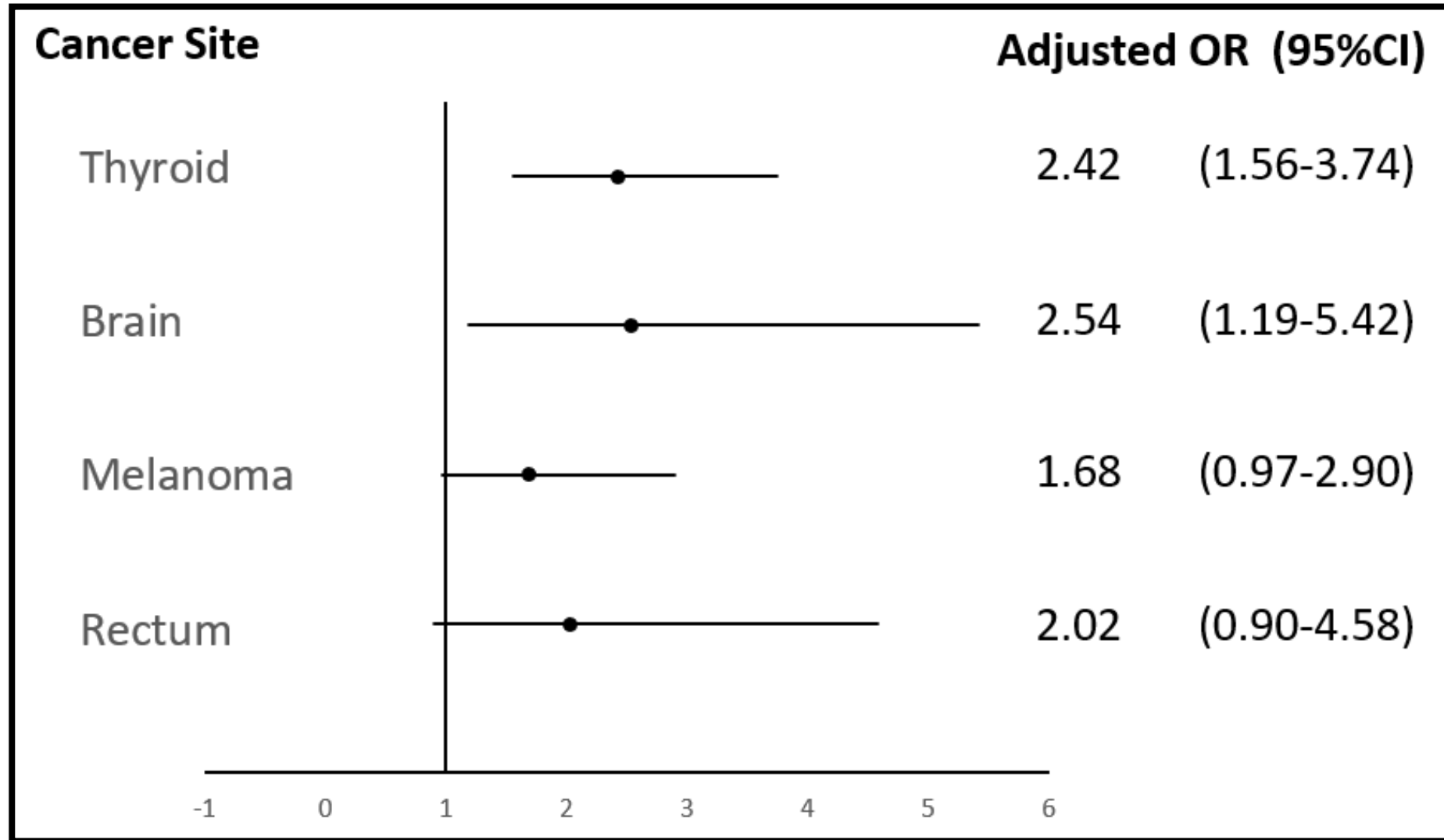
Overall Male: Elevated Sites



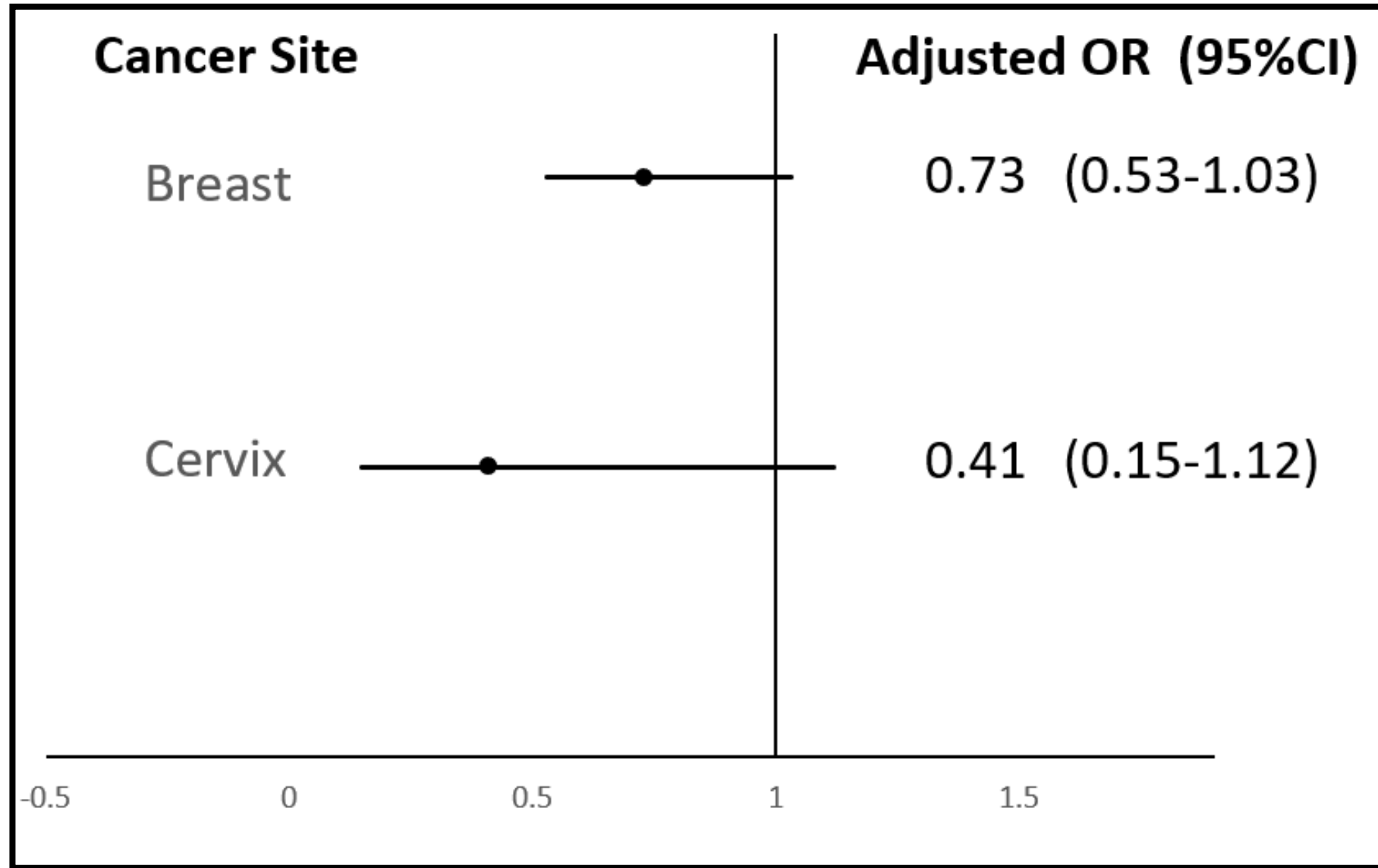
Overall Male: Reduced Risk Sites



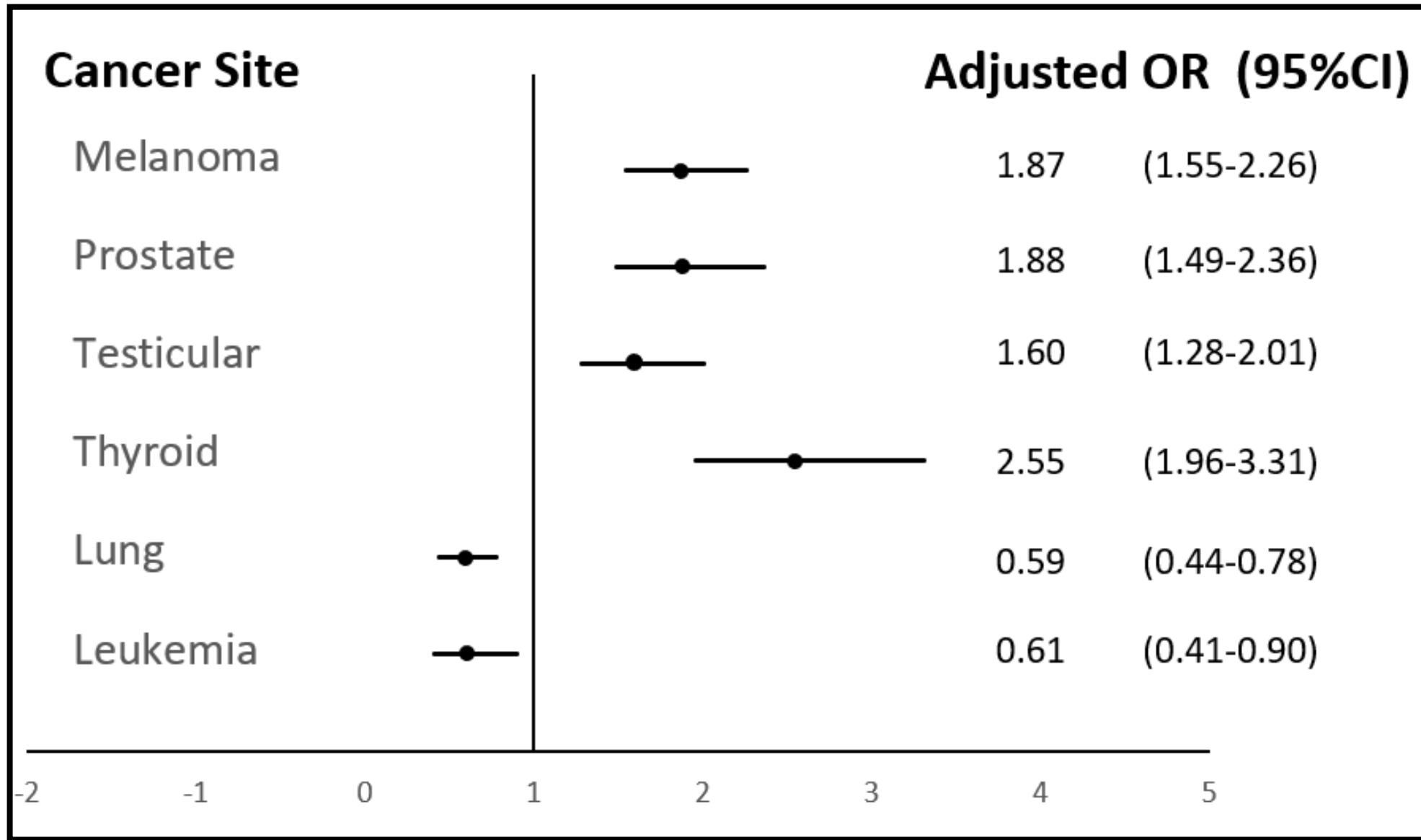
Overall Female: Elevated Sites



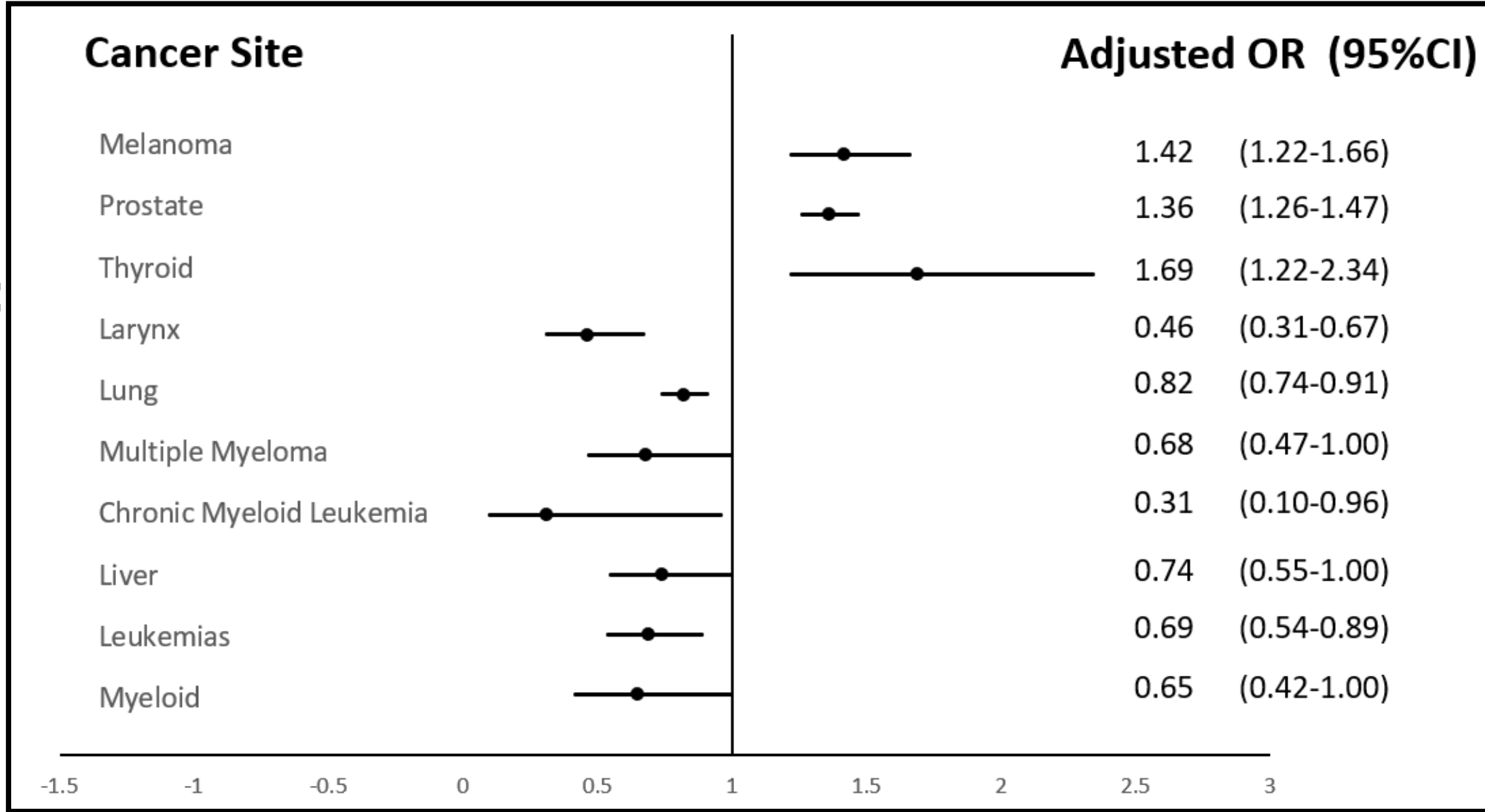
Overall Female: Reduced Risk Sites



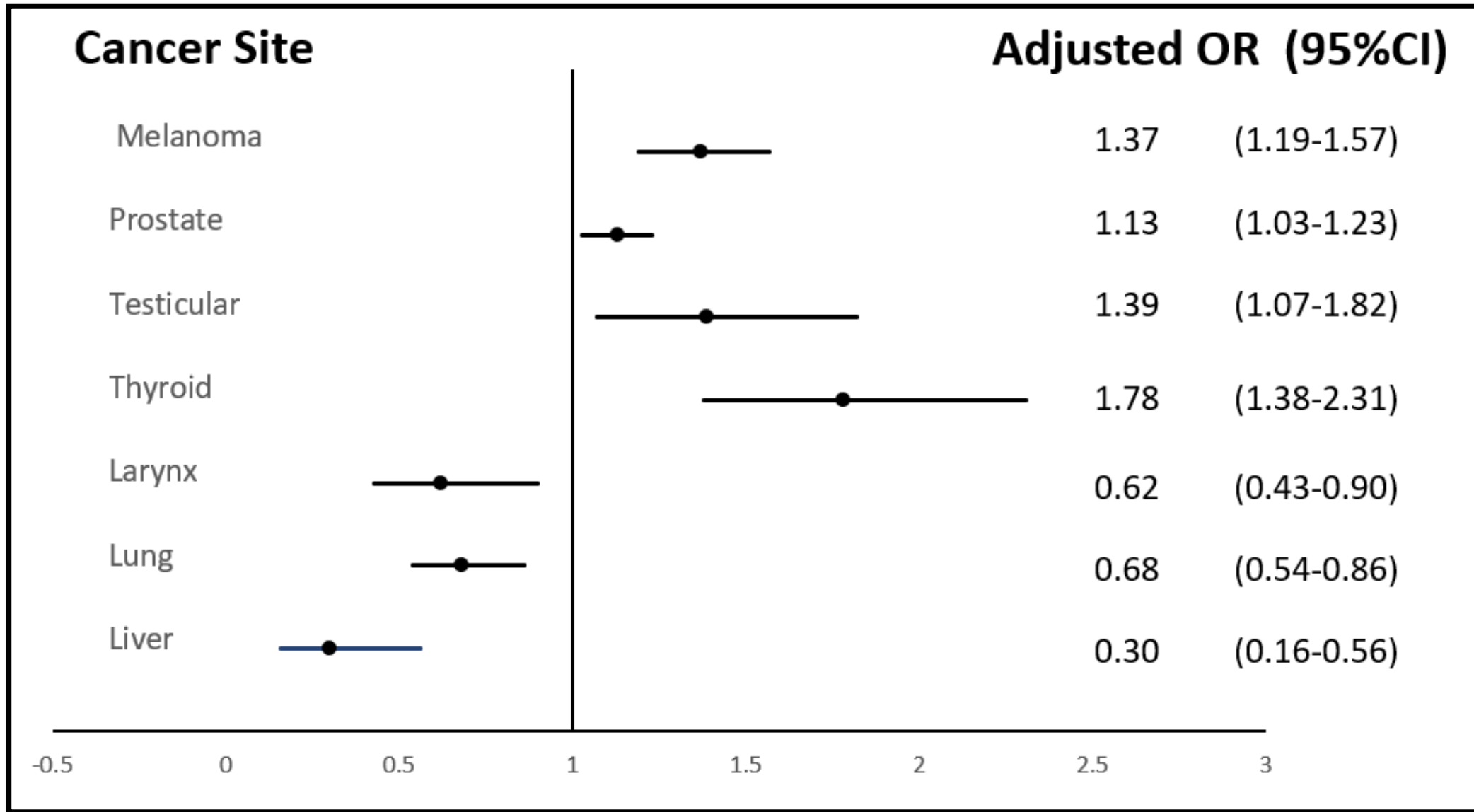
**Males:
<50 years**



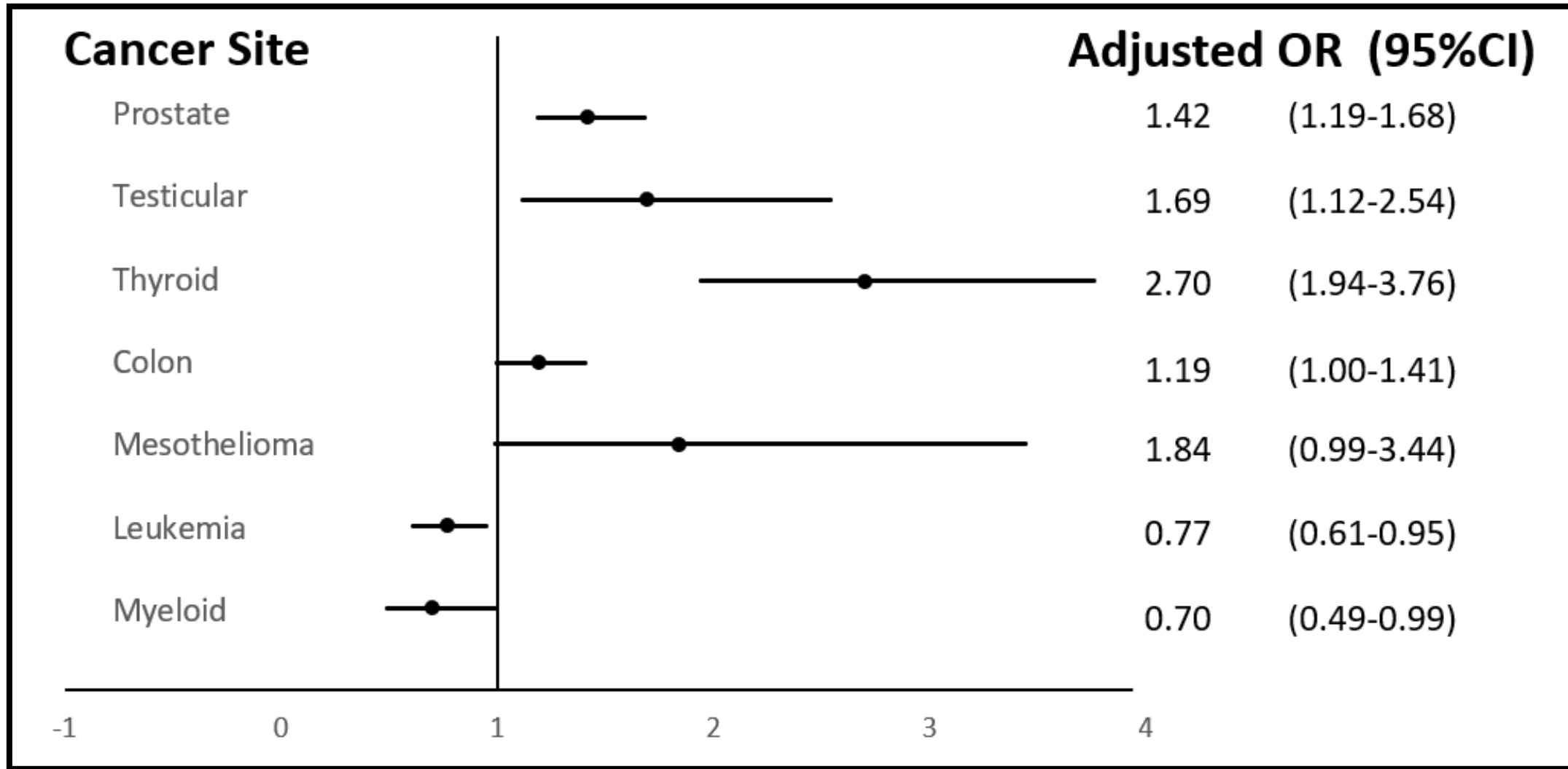
Males:
=>50



Males: Early Stage



Males: Late Stage



Florida associations often stronger than those identified in the Jalilian meta-analysis

Cancer Site	Jalilian et al Meta-Analysis 2019	Florida 1981-2014
Prostate	1.15 [1.05-1.27]	1.36 [1.27-1.46]
Testicular	1.34 [1.08-1.68]	1.66 [1.34-2.07]
Thyroid	1.22 [1.01-1.48]	M 2.18 [1.78-2.66]; F: 2.42 [1.56-3.74]
Melanoma	1.21 [1.02-1.45]	M: 1.56 [1.39-1.76]; F: 1.68 [0.97-2.90]
Rectum	1.09 [1.00-1.20]	M: 0.97 [0.80-1.17] F: 2.02 [0.90-4.58]
Colon	1.14 [1.06-1.21]	Male Late Stage: 1.19 [1.00-1.41]
Bladder	1.12 [1.04-1.21]	
Pleura	1.60 [1.09-2.34]	Male late stage: 1.84 [0.99-3.44]
Brain	1.07 [0.87-1.33]	Females: 2.54 [1.19-5.42]

Next steps

- Cancer mortality analyses are underway
- Will study the smaller number of volunteer firefighters
- Will also study multiple primaries in career firefighters
- Also interested in examining the influence of tobacco policy on lower tobacco-associated cancer risk in Florida firefighters

Thank you

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