

AR226-1773

CANCER PREVALENCE IN SUBJECTS EXPOSED TO
PERFLUOROOCTANONIC ACID (PFOA)

James Dahlgren MD¹, Ayman B Ibrahim MD^{1,2,3}, Raphael Warshaw², Harpreet Takhar MPH³

1. UCLA School of Medicine. 2. Comprehensive Health Screening Services.
3. Dahlgren Medical Group

Please address correspondence to:

James Dahlgren, MD

2811 Wilshire Blvd.

Santa Monica, CA 90403

Voice: 310-449-5525 ext. 226

FAX: 310-449-5526

dahlgren@envirototoxicology.com

Key words: PFOA, PFOS, PFAS, C8, cancer, prevalence, environmental, exposure, fluorochemicals

Session: Perfluorinated substances

LE 1828

Perfluorooctanoic Acid (PFOA) is a man-made perfluorooctanol chemical, which is also referred to as C8. PFOA is a key ingredient agent in the production of Teflon® and other fluorochemical products and is biopersistent and bioaccumulates. There has been documented chronic exposure to PFOA of the residents near a plant using PFOA and other fluorinated contaminants.

Our aim was to compare cancer distribution and cancer prevalence rates in a PFOA-exposed population (residents) to that of the industry cancer registry data from an occupational exposed population and finally to the general population (SEER). We performed a questionnaire on 599 residents living near a PFOA using manufacturing plant operated by Dupont. Cancer registry data from the PFOA Dupont workers was made available through discovery in pending litigation against Dupont and was not previously made available to the scientific community for review. The SEER data was used for comparison to the general population.

The overall cancer prevalence rate is higher in the PFOA-exposed population when compared to the general population. Comparison of cancer prevalence rates for the industry cancer registry data, resident data and SEER is shown in Table 1.

Our findings indicate that the PFOA exposed residential population and PFOA-exposed workers have elevated cancer prevalence (Table 1). Prostate cancer in the residents was proportionately elevated among young age males. Cervix and uterine cancer rates in women were also higher in the resident population compared to the U.S. general population.

The distribution of cancers in the residents and workers is different than expected. Of note are the findings of elevated prevalence rates of atypical cancers such as Non-Hodgkin's, Leukemia, and Multiple Myeloma.

This data suggests that exposure to PFOA may alter cancer distribution in exposed populations (worker and residents) and may be an important risk factor for an excess of cancer cases.

LE 1829

LB 1830

Table 1. Total Prevalence Rates in Dupont Study, Resident Population, and US Population

Type of Cancer	Dupont Study			Resident Data			U.S. Data		Dupont: US	Resident: US
	Cancers	Population	Rate	Cancers	Population	Rate	Rate	Ratio		
Bladder	10	5523	0.320%	4	589	0.680%	0.110%	2.08		4.07
Bone	2	5523	0.036%	0	589	0.000%	0.010%	3.02		
Brain	8	5523	0.145%	0	589	0.000%	0.020%	7.24		
Breast	8	1034	0.774%	6	301	1.993%	0.870%	0.89		2.29
Cervix/Uteri	1	1034	0.097%	11	301	3.654%	0.060%	1.61		60.91
Colon & Rectum	32	5523	0.579%	4	589	0.680%	0.340%	1.70		1.98
Esophagus	3	5523	0.054%	0	589	0.000%	0.004%	13.68		
Hodgkin's	4	5523	0.072%	1	589	0.167%	0.020%	3.82		8.35
Kidney	18	5523	0.326%	2	589	0.334%	0.070%	4.66		4.77
Larynx	6	5523	0.108%	0	589	0.000%	0.020%	5.43		
Oral Cavity	11	5523	0.198%	2	589	0.334%	0.050%	7.24		4.17
Leukemia	16	5523	0.290%	1	589	0.167%	0.006%	12.07		27.02
Liver	4	5523	0.072%	1	589	0.167%	0.006%	12.07		27.02
Lung	64	5523	1.159%	7	589	1.189%	0.090%	12.88		12.90
Melanoma	17	5523	0.308%	4	589	0.680%	0.120%	2.67		5.58
Myeloma	9	5523	0.163%	2	589	0.334%	0.010%	16.30		33.39
Non-Hodgkin's	9	5523	0.163%	5	189	0.835%	0.080%	2.04		10.43
Pancreas	9	5523	0.163%	0	589	0.000%	0.010%	16.30		
Prostate	19	4489	0.423%	9	288	3.041%	1.180%	0.38		2.62
Stomach	2	5523	0.036%	0	589	0.000%	0.014%	2.58		
Testicular	5	4489	0.111%	0	288	0.000%	0.050%	2.23		
Thyroid	3	5523	0.054%	1	589	0.167%	0.050%	1.08		3.34
TOTAL	309	5523	5.585%	80	589	10.017%	2.080%	2.68		4.82

* Based on SEER Final Malignant Primary
* Based on Total Counts