

UNDERSTANDING THE NYPD 20-YEAR REVIEW OF CANCER

Recently, the eagerly awaited NYPD Medical Division's 20-year review of cancer within the Department, was published comparing the periods before and after the 9/11/01 WTC disaster. Our team of co-authors include highly regarded cancer and radiation epidemiologists and bio-statisticians from the Weill-Cornell Medical College and Columbia University/NY-Presbyterian Medical Center and its Mailman School of Public Health.

Our report on cancer data among the largest WTC responder group, appears in the October 2015 edition of the Journal of Occupational and Environmental Medicine, a noted scientific journal geared toward physicians and scientific researchers, the findings of which have been widely circulated in the media. We thought it prudent to explain the study findings in lay terminology, so that everyone can better understand its implications.

Our study—the largest cancer study ever of police officers—reviewed the records of nearly 40,000 MOS, who were employed on 9/11/01 as active duty officers, and followed their cancer rates through 2014, noting every cancer diagnosis reported, along with their descriptive features. We also followed all exposed retiree cancer rates following their exposure in 2001.

Here's what we found:

- There were 870 cancer diagnoses in 859 MOS (11 MOS had more than one cancer)
- About 56% of MOS with cancer served at Ground Zero in the first 24 hours, experiencing the debris cloud at its most intense, while 81% served there at some period thereafter
- The majority of MOS with cancer (72%) were exposed less than 1000 hrs
- 16.5% of MOS with cancer were smokers, while 49% were non-smokers
- None of the cancer cases had any known toxic work-related exposures except WTC exposure
- Overall cancer rates in MOS increased about 1 ½ fold in the 2002–2014 period, compared to the 1995–2001 period, including common cancers such as colon, prostate, and female breast, which had also increased in the general population during this period
- NYPD cancer rates were lower than that of the general population—as was expected—due to a "Healthy Worker Effect," seen in populations of cops, firefighters and others, whose initial job entry requirements demanded physical fitness (an epidemiologic observation that appears to last a long time).

However, somewhat unexpectedly, we also found elevations in four cancer types that are not

particularly well known to the public, and have not been featured in screening campaigns like those mentioned above. These included:

1. **Malignant brain tumors**, which appear to have tripled in the post-exposure years
2. **Kidney cancer**, which also increased three-fold after 2001
3. **Thyroid cancer**, which approximately doubled since 2001
4. **Non-Hodgkin's Lymphoma**, which increased about 1 ½ fold since 2001

What do these findings mean to researchers and how does it affect MOS?

As a matter of introduction, it might be helpful to review a few background points about epidemiologic studies such as this.

Investigative medical studies come in a variety of types, some looking at entire populations, or at specific groups within a population, such as steel workers, teachers, or police officers. They can be retrospective, reviewing historical medical records, or prospective, or forward-looking, at how a group exposed to a specific event such as the Japanese nuclear reactor leak, or the 9/11 WTC disaster, fares over a period of time thereafter.

Studies such as these are complex and must be designed to take into account a whole host of possible “red herrings” or “confounders,” that can mislead one toward erroneous conclusions regarding event A causing effect B. Only after being subjected to sophisticated analysis, can determinations be made as to whether there exists any association between the two “factors.”

In order for a study to be meaningful and to allow researchers to reach conclusions about cause or effect, or recommend one treatment over another, it makes a difference if there were 100 subjects versus 10,000 subjects in a study. Thus, the “power” of a study's conclusions depends upon the number of subjects in the study population.

In addition, the makeup of a study population is critical, in that comparisons must be made between similar subject groups—between apples and apples, not apples and oranges—in order to be meaningful, and must take into account demographics such as age, gender, ethnicity, and common backgrounds, such as similar baseline physical characteristics, training or exposure history. In this way, observed results coming out of a group or 'cohort' studied, can be deemed “statistically significant,” or not.

Epidemiologists view the elevated rates of commonly recognized cancers such as some of those seen in our study with concern, but wonder whether cancers the public has become educated about are really increased, or only appear to be, due to the fact that more people have been getting screened, by colonoscopy or mammograms, and therefore represent a possible “red herring” or confounder known as “surveillance bias.”

However, the four cancers we unexpectedly found increased—brain, kidney, thyroid, and lymphoma—do not appear to us to suffer significantly from such bias, as most of these cancers came to medical attention through symptoms, and were not discovered at routine screening.

These cancers in MOS are thus troubling—even in their small numbers—due to the fact they have either doubled or tripled in our internal comparison between the pre and post-exposure periods, and there are no clear explanations for their increased rates. As was noted in WTC studies of firefighters and other exposed individuals, published by other groups, no firm conclusions regarding WTC exposure and subsequent development of specific cancers were possible then, as they are now, due to the very small numbers of cancer cases and possibility of “red herring” confounders.

Nevertheless, it is clear that monitoring of MOS and other exposed individuals must continue, while further research is conducted and clearer linkages between exposures and cancer are studied. The NYPD is exploring research avenues in conjunction with world-renowned cancer institutions on strategies for monitoring, and possible genetic testing of our exposed MOS, in order to protect our cohort and afford them the best in medical surveillance.

It is for this reason that it is so vital that exposed MOS –Active and Retired- schedule an annual appointment for NYPD WTC Medical Monitoring through the Medical Division, even if you are enrolled in another WTC monitoring program elsewhere, so that we can retain the integrity of this unique cohort and maintain the power of our numbers, as the largest exposed NYC WTC Responder group, to help one another get to the answers we all seek.

WTC monitoring at the NYPD Medical Division is always on job time, has no waiting period, is eligible to any MOS (active\retired) who has a WTC exposure or filed a “WTC Notice of Participation” , and covers all testing and monitoring costs.

Anyone interested in reading the actual Journal of Occupational & Environmental Medicine study can log on to the JOEM website at http://journals.lww.com/joem/Fulltext/2015/10000/NYPD_Cancer_Incidence_Rates_1995_2014_Encompassing.16.aspx click onto the October Issue then scroll down to the on-line only articles, where “NYPD Cancer Incident Rates 1995-2014 Encompassing the Entire World Trade Center” can be downloaded free of charge.

Wishing you all continued good health,
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