NYC Health

Testimony

of

Carolyn Greene, MD
Deputy Commissioner for Epidemiology
New York City Department of Health and Mental Hygiene

before the

New York City Council
Committee on Civil Service and Labor and
Committee on Lower Manhattan Redevelopment

regarding

Oversight: Are cancer rates increasing in 9/11 Responders?

June 17, 2013

250 Broadway
Committee Room, 14th Floor
New York, NY

Good afternoon, Chairman Nelson, Chairwoman Chin, and members of the Committees. My name is Dr. Carolyn Greene, and I am the Deputy Commissioner for the Division of Epidemiology at the New York City Department of Health and Mental Hygiene. On behalf of the Health Department and Commissioner Farley, thank you for the opportunity to testify today on cancer rates among 9/11 responders.

As you know, the Health Department oversees the work of the World Trade Center (or "WTC") Health Registry and I represent the Health Department on New York City's World Trade Center Medical Working Group, which is co-chaired by Deputy Mayor Linda Gibbs and Commissioner Thomas Farley. I also am a co-author of the Registry's first cancer analysis among World Trade Center-exposed individuals which was published last December by the *Journal of the American Medical Association*, one of the nation's leading medical journals.

Including the WTC Health Registry study, three major studies examining the potential association between WTC-exposure and cancer rates among responders have been published to date in the scientific literature:

Researchers at the Fire Department of New York (FDNY) found a 19% increase in all cancer rates combined among WTC-exposed firefighters compared to non-exposed firefighters largely due to slight increases in three specific types of cancer: thyroid cancer, prostate cancer and non-Hodgkin's lymphoma. My colleague at FDNY, Dr. Prezant is here today to provide you with more details about his study which focused exclusively on male firefighters.

Researchers at Mount Sinai, who looked at a more diverse group of responders including police and construction workers, found a 15% increase in the rates of all cancers combined. Again, this increase was largely the result of confirming more cases of thyroid and prostate cancers than expected, and more cases of all blood cancers combined than expected.

At the time of their publication, the FDNY, Mount Sinai, and the WTC Health Registry studies analyzed only cancer diagnoses confirmed through 2008. Cancers typically take many years to develop and the authors of all these studies have stated that these very early results should be interpreted with caution, and that close monitoring of WTC-exposed individuals should continue.

The remainder of my testimony will focus on the WTC Health Registry's study. The Health Department has published more than 30 articles in the scientific literature documenting the health effects of the World Trade Center collapse on exposed individuals. Chronic respiratory problems and psychological distress are by far the most prevalent adverse health outcomes identified. We have long been interested in the question about whether exposure to the disaster has an effect on cancer and mortality rates.

The World Trade Center Health Registry has included questions about cancer on all its major surveys beginning in 2003-2004. In 2007, the Health Department first brought together an expert panel to discuss the potential impact of the WTC disaster on cancer rates and mortality. This included representatives from: the Fire Department of New York City (FDNY), the Mount Sinai School of Medicine, the New York State Department of Health, and the National Institute for Occupational Safety and Health.

The scientific literature offers limited information about the role environmental exposure can play in the development of different types of cancer, but we know that cancer usually takes many years or even decades to develop. As a result, it only became feasible recently for WTC researchers to begin preliminary analyses of cancer rates among 9/11 responders and others who were exposed to the WTC collapse.

In 2010, after starting the lengthy process of confirming cancer diagnoses, the Health Department and FDNY co-chaired a conference of national experts, including biostatisticians, environmental health scientists and cancer epidemiologists, to help address the complex methodological challenges associated with any early cancer investigation. This conference produced several recommendations which the Health Department then followed in our research. In addition, the Registry's cancer research team included one of these experts, Dr. Leslie Stayner, a professor of epidemiology and biostatistics at the University of Illinois's School of Public Health.

In 2003-2004, nearly 71,000 people enrolled in the WTC Health Registry. This population is unique because it includes both responders to the WTC disaster, people who lived, worked or went to school in Lower Manhattan, and passers-by on 9/11. In the Health Department's initial cancer study, we analyzed cancer rates among nearly 56,000 enrollees who were living in New York State on 9/11 with the objective of learning whether persons who were exposed to the WTC disaster have developed more cancers than unexposed persons of the same age, sex and ethnicity. This is the largest analysis to date among WTC-exposed persons, and it included nearly 22,000 responders. Half of these are City employees, including members of FDNY, the Police Department and our Department of Sanitation.

Although much of the information that the WTC Health Registry gathers through its surveys is based on self-report, our cancer study included only cancer cases that were diagnosed by health professionals and reported by state cancer registries. This method ensured the accuracy of case identification and also was used by researchers at FDNY and Mount Sinai in their analyses.

Physicians, hospitals and laboratories report cancer diagnoses to registries in each of their states. We contacted cancer registries in 11 states where more than 95% of our enrollees now live and asked the cancer registries to match our enrollees against their databases. They provided us with information on all confirmed cases of cancer among these people.

In our initial analysis, we included all new cancers diagnosed between 2003 and 2008. Since cancers associated with environmental exposures take many years to develop, we

believed that cancers diagnosed from 2007 to 2008 were more likely to be related to 9/11 than those diagnosed earlier. Therefore, we analyzed these later cases separately from those cancer cases occurring before 2007.

In order to determine if the number of new cancer diagnoses was higher than it would have been if the WTC collapse had not occurred, it was extremely important to select a comparison population that was similar to our study population. We chose residents of New York State because the majority of our enrollees continue to live here. We also adjusted our analysis for age, gender and race, which is standard practice in epidemiology.

Our analysis confirmed 439 cancer diagnoses among 22,000 responders from 2003 to 2008, which was approximately the number that would be expected had the WTC disaster not occurred, based on our comparison population of New York State residents. However, in our separate analysis for 2007 and 2008, we did find statistically significant increases in three of the 23 specific types of cancers we examined: prostate cancer, thyroid cancer and multiple myeloma, a type of blood cancer. We found 67 cases of prostate cancer (20 more than would expected in our comparison population); 13 cases of thyroid cancer (seven more than expected); and seven cases of multiple myeloma (five more than expected). The other 20 types of cancer did not show statistically significant increases, but we should point out that during the same period, we also found six *fewer* cases of lung cancer than would be expected (20 instead of 26).

It is unclear why we and other WTC researchers found more prostate and thyroid cancers in our study population of responders than we expected. Radiation, an environmental exposure that has been associated with thyroid cancer, was not present at the WTC site and scientists have not yet found *any* environmental exposures conclusively associated with prostate cancer. It is possible that the increases in prostate and thyroid cancers may result from the fact that first responders, who generally are well insured, are screened for health problems more frequently than other adults in New York State, and thyroid and prostate cancers are often identified by health screenings like these.

For example, responders enrolled in the federal WTC Health Program, which includes both the FDNY and Mount Sinai cohorts, routinely receive computed tomograms, also known as CT scans, of the chest. These tests can pick up thyroid cancer, which may explain the increase in diagnosed thyroid cancer. More frequent screening with prostate-specific antigen tests could also explain the increase in diagnosed prostate cancer among responders, although it did not appear that responders in the WTC Health Registry were more likely to have their cancer diagnosed at an earlier stage than our New York State comparison population.

Increases in multiple myeloma, the second-most commonly diagnosed blood cancer in the United States, among WTC responders may be more plausible from a biological perspective. Blood cancers take less time to develop than solid tumors, and they have been associated with benzene, a chemical found in jet fuel which was released into the environment when the two planes crashed into the World Trade Center. In addition,

Mount Sinai published research in 2009 confirming multiple myeloma diagnoses in eight responders, four of whom were younger than typically expected at the time of diagnosis.

At the recommendation of our experts, we also performed our analysis by level of exposure to the WTC disaster, classifying responders who arrived at the WTC site on 9/11 or who worked more than 90 days at the site in the high exposure category. We did not find that people with more intense exposure were more likely to get prostate cancer, thyroid cancer, or multiple myeloma, but it is important to note that our ability to measure an individual's exposure level, similar to that of other WTC researchers, was limited because all exposures in the wake of the disaster were self-reported.

Unlike our previous studies of asthma, PTSD and other health conditions that were clearly related to WTC exposure, we are not able to say at this early stage whether the increases we found in prostate cancer, thyroid cancer and multiple myeloma are caused by WTC exposure. As I said at the beginning of my testimony, the follow-up period for our study ended in 2008, which means that most cancers would not have had time to develop. Looking at all three of the studies completed to date, it is still too soon to reach any firm conclusion about whether we are seeing cancer increases in 9/11 responders.

The WTC Health Registry, FDNY and Mount Sinai all have received federal funding to continue our cancer analyses. We plan to conduct our next analysis among enrollees in 2014, at which time state cancer registries will be able to confirm cancer diagnoses through 2011; a full decade of post-9/11 cancer data for WTC responders will be available for analysis. As the Health Department continues to accumulate more years of cancer data, we will publish new findings as soon as we are able.

Thank you for the opportunity to testify, and I would be happy to take any questions.

NEW YORK CITY COUNCIL
Committee on Civil Service and Labor
Committee on Lower Manhattan Redevelopment

Cancer Rates and 9/11 Responders

Testimony of David Prezant, MD
Chief Medical Officer, Special Advisor to the Fire Commissioner on Health Policy
New York City Fire Department

June 17, 2013

Introduction

Good afternoon Chairwoman Chin, Chairman Nelson and Council Members. My name is David Prezant, and I am the Chief Medical Officer, and Special Advisor to the Fire Commissioner on Health Policy for the New York City Fire Department (FDNY). I am also a Professor of Medicine in Pulmonary Diseases at the Albert Einstein College of Medicine and an attending physician in the pulmonary medicine division at Montefiore, the University Hospital and academic medical center for Einstein. Along with Dr. Kerry Kelly, I am the Co-Director of the FDNY World Trade Center (WTC) Medical Monitoring and Treatment Program. Thank you for the opportunity to speak with you today about cancer rates and FDNY first responders.

I base my testimony today primarily on a September 2011 article that the FDNY – along with Einstein and Montefiore -- published in a special 9/11 issue of *The Lancet*, one of the world's best known and most respected peer-reviewed general medical journals. I have copies of that article available for the Committee.

That article presented our early assessment of cancer outcomes in FDNY firefighters after the attacks of 9/11. Our study evaluated the health of 9,853 WTC-exposed and non-exposed firefighters over the seven years following 9/11. In sum, we found that New York City firefighters exposed to the 9/11 WTC disaster site experienced a 19 percent increased incidence of cancer in the seven years following the 9/11 disaster when compared with their non-exposed colleagues. This firefighter cohort also experienced a 10 percent increased incidence compared with similar individuals from the general population.

The Findings

The terrorist attacks on September 11, 2001 created an unprecedented environmental disaster in the New York City area. Many first responders, including approximately 12,500 FDNY firefighters, were exposed to potentially hazardous aerosolized dust consisting of pulverized cement, glass fibers, asbestos, lead, polycyclic aromatic hydrocarbons, polychlorinated biphenyls, and polychlorinated furans and dioxins produced as combustion byproducts from the collapsed and burning buildings. They were also exposed to toxic fumes -- initially from burning jet fuel and, during the 10-month recovery effort, from diesel smoke emitted by heavy equipment. My FDNY colleagues and I had previously published several studies regarding the *lung health* of WTC-exposed first responders. *The Lancet* study was the first effort to assess the *incidence of cancer* among an entire WTC-exposed cohort – in this case WTC-exposed firefighters.

The great value of our findings was that we had access to health records for all firefighters in the study dating back to 1996 – records that were part of the FDNY's rigorous and ongoing health registry. To date, it is the largest cancer study ever done of firefighters. Our team of investigators looked at cancer incidence and its possible association with exposure in the first seven years after 9/11. We compared the cancer incidence rates in WTC-exposed firefighters with cancer incidence in non-exposed firefighters and also with a sample of people, selected from the U.S. National Cancer Institute Surveillance Epidemiology and End Results (SEER) database, who were similar to the firefighters with respect to age, race and ethnic origin.

When cancer incidence among non-exposed male firefighters was compared with cancer incidence in the SEER general-population sample, cancer rates were lower than the general population -- a result likely due to the "healthy worker effect": FDNY firefighters have lower smoking rates, stringent pre-employment health requirements and greater physical fitness standards than the general population.

When cancer incidence among WTC-exposed male firefighters was compared with cancer incidence in the SEER general-population sample, WTC-exposed firefighters were found to have a *10 percent increased risk* for all cancers combined. When the same comparison was made between WTC-exposed and non-exposed FDNY firefighters, the increased cancer risk for

the WTC-exposed firefighters (adjusted for surveillance bias) was 19 percent, based on an excess of 38 cases.

In a report published two months before *The Lancet* study, the National Institute for Occupational Safety and Health (NIOSH) concluded that evidence at that time did not demonstrate a causal association between exposures resulting from the attacks on the WTC and cancer occurrence in responders and survivors. For this reason, the WTC Health Program determined that insufficient evidence existed to add cancer to the List of WTC-Related Health Conditions. However, following the publication of our findings in The Lancet study, the WTC expert panel recommended in the 2012 NIOSH WTC cancer report that numerous cancers should be covered by the WTC health program.

The Lancet study – which was funded by NIOSH -- also compared cancer incidence at 15 specific sites in the body in WTC-exposed and non-exposed firefighters. We found no sites in the body for which cancer incidence among WTC-exposed firefighters was significantly increased. However, a trend towards increased risk was noted in 10 of the 15 sites studied. The study noted that this failure to reach statistical significance may have been due to the small sample size available for these site-specific cancers. The finding that lung cancer incidence was similar for both WTC-exposed and non-exposed firefighters took smoking history into account: all nine WTC-exposed firefighters who developed lung cancer were also smokers.

An association between WTC exposure and cancer incidence among WTC-exposed firefighters is biologically plausible because some contaminants in the WTC dust – such as polycyclic aromatic hydrocarbons, polychlorinated biphenyls and dioxins – are known carcinogens. Also, WTC exposure also caused chronic inflammation: inflammation has been implicated as a risk factor for cancer in experimental and epidemiological studies.

We remain cautious in our interpretation of the findings because the time since 9/11 is short for cancer outcomes, and the reported excess of cancers is not limited to specific organ types. We also caution against generalizing our findings to other WTC worker or resident cohorts because firefighters experienced uniquely intense WTC exposures. Nonetheless, the study's results demonstrate how imperative it is to continue monitoring firefighters and every other person who responded to the WTC disaster or participated in recovery and cleanup at the

site. This monitoring should include cancer screening and efforts to prevent cancer from developing in exposed individuals.

Conclusion

The 343 firefighters who perished on 9/11 are tragic reminders of the risks our members faced that day, but we remain concerned for the long-term health and future of those who survived that tragedy.

It is critical that we continue the close surveillance of our workforce – both retired and active -- to observe patterns of disease or illness and to provide focused treatment to restore well-being. Early treatment of symptoms can reduce disability and restore function in many members. Sufficient resources must be provided to continue long-term monitoring and treatment.

Obtaining sufficient funding for our programs and treatment continues to be of great concern to us. We will continue to work with our elected officials to fight for the long-term financial support for those who suffer still as a result of the attack on our country.

We thank the Council for *their* continued support.

Thank you for inviting me to testify this afternoon. I would be happy to take your questions at this time.

The City of New York
Manhattan Community Board 1
Catherine McVay Hughes CHAIRPERSON | Noah Pfefferblit DISTRICT MANAGER

Committee on Lower Manhattan Redevelopment and
Committee on Civil Service and Labor

Oversight Hearing:
Are Cancer Rates Increasing in 9/11 Responders?

Testimony by Catherine McVay Hughes
Chairperson

Monday, June 17, 2013
250 Broadway, Committee Room, 16th Floor, New York, NY
12:00 PM

Good afternoon Chairpersons Chin and Nelson and members of the New York City Council Committees on Lower Manhattan Redevelopment and Civil Service and Labor. I am Catherine McVay Hughes, Chairperson of Manhattan Community Board One. We thank you for the opportunity to comment on this very important topic for our community.

We continue to appreciate the important work done by the 9/11 Medical Working Group that is Co-Chaired by Deputy Mayor Linda Gibbs and Health Commissioner Thomas Farley, and includes representation from the WTC Centers of Excellences, the Fire Department of New York (FDNY), NYC Health and Hospitals Corporation, Mount Sinai Hospital, the 9/11 Health Registry, as well as other 9/11 health experts.

Mount Sinai's World Trade Center Health Program found that World Trade Center first responders have a 15% higher rate of contracting cancer than the general public, according to a recently published report ("Cancer Incidence in World Trade Center Rescue and Recovery Workers, 2001-2008" Environmental Health Perspectives, National Institute of Environmental Health Science, April 23, 2013). These findings are particularly troubling; I quote:

> *"Elevations were seen for cancers at all anatomic sites in the human body combined, as well as for cancer of the thyroid, prostate cancer, hematopoietic (blood) and lymphoid cancer, and soft-tissue cancer. Cancer incidence rates were most highly elevated in very highly-exposed responders who were trapped in the dust cloud or who worked a significant number of days at the WTC site."*

This report confirms prior studies by the FDNY and the New York City Department of Health and Mental Hygiene that also found correlation between first responders and others exposed on 9/11 and an increased rate of cancer. Most importantly, the Mount Sinai report acknowledges that additional time is needed to study the relative extended latency of cancer development and advises continued research and surveillance.

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When the James Zadroga 9/11 Health and Compensation Act of 2010 ("the Act") was implemented in 2011, cancer was not included in the list of "WTC-Related Health Conditions" covered by the Act due, in part, to the publishing of insufficient evidence.

One of the problems is a long delay between collecting and publishing data. This is highlighted in an article that appeared in the Economist on June 8, 2013: "Ask a researcher what annoys him most about scientific publishing, and slowness will come near the top of the list of gripes. It takes nearly six months, on average, for a manuscript to wend its way from submission to publication. Worse, before a paper is accepted by a journal, it is often rejected by one or more others. The reason need not be a fatal flaw in the research; sometimes the work is simply not splashy enough for outlets high up in the pecking order."

CB1 has continuously supported adequate coverage of all diseases and medical conditions associated with 9/11 and adopted a resolution in January 24, 2012 calling for the Act to include coverage of cancer. Following an extensive scientific research review by the World Trade Center Health Program Scientific/Technical Advisory Committee, the CDC National Institute for Occupational Safety and Health (NIOSH) ruled in September of 2012 that free monitoring and treatment for 50 forms of cancer would be included under the Act. The recent Mount Sinai report highlights the need to look again at whether additional cancers such as prostate cancer, one of the most frequent types of cancer among 9/11 first responders, should be included as "WTC-Related Health Conditions."

CB1 strongly supports the addition of 50 cancers by the World Trade Center Administrator. All 50 cancers were added for responders as well as survivors under the Act. The WTC Health Program has a multi-step process for certifying cancers. Hundreds of responder cancers and scores of survivor cancers have been certified.

In addition, CB1 is concerned about children and their WTC exposure. On January 24, 2012, we unanimously passed a resolution on WTC pediatric research and called for ongoing research into WTC physical health impacts to children – specifically, in-depth evaluation of pediatric effects of exposure, including lung function, mental health or developmental and endocrine effects. Additionally, on September 20, 2012 we unanimously adopted a resolution urging NIOSH to fund "Early Identification of World Trade Center Conditions in Adolescents." Little is known about the effects of exposures during the vulnerable growth period.

CB1 fully supports continued research into the rate of cancer and other medical conditions among first responders and others exposed at and around the World Trade Center site on and following 9/11. The "WTC-Related Health Conditions" of the Act should be modified to reflect the findings of this ongoing research.

CB1 continues to vigorously support adequate health services for first responders, as well as residents, children and workers exposed on and after 9/11. We are grateful to the advocates and allies who have worked tirelessly with us to address the physical and mental health concerns of all those affected by the 9/11 terrorist attacks. We hope this testimony and our efforts will lead to further support for these very important studies and expansion of vitally important services.

Thank you for the opportunity to testify today.

COMMUNITY BOARD #1 – MANHATTAN
RESOLUTION

DATE: SEPTEMBER 20, 2012

COMMITTEE OF ORIGIN: YOUTH & EDUCATION

COMMITTEE VOTE:*	4 In Favor	0 Opposed	0 Abstained	0 Recused
PUBLIC MEMBERS:	1 In Favor	0 Opposed	0 Abstained	0 Recused
BOARD VOTE:	35 In Favor	0 Opposed	0 Abstained	0 Recused

** Due to the absence of a quorum, the committee vote taken on this resolution is unofficial and for informational purposes only.*

RE: Support for World Trade Center Pediatric Study Proposal "Early Identification of WTC Conditions in Adolescents"

WHEREAS: The James Zadroga 9/11 Health and Compensation Act (the "Zadroga Act") creates the World Trade Center Health Program within the National Institute of Occupational Safety and Health (NIOSH), to provide specialized treatment to responders and survivors, including children who resided or attended school or daycare downtown, for their WTC-related health conditions; and

WHEREAS: Community Board #1 (CB1) has passed resolutions calling for the creation of the WTC Pediatric Program as part of the WTC Environmental Health Center, which is the clinical center of excellence serving survivors in the WTC Health Program, to provide WTC-related care to children on January 24, 2012; and also calling on Congress to pass the Zadroga Act in several resolutions, for example in March 2009, October 26, 2010 and November 20, 2007; and

WHEREAS: The Zadroga Act directs NIOSH to provide funding for research into the physical and mental health impacts of the WTC disaster on all exposed populations; and

WHEREAS: Children have been the least-studied exposed population; and

WHEREAS: In February of 2012, at the request of Dr. John Howard, the WTC Health Program Administrator, the WTC Health Program's Scientific and Technical Advisory Committee issued recommendations on WTC research priorities stating: "We know very little about the health effects of the WTC disaster on the more than 30,000 children living or attending school or daycare in the area. Given children's increased susceptibility to harm, especially in critical periods of development, it is imperative that NIOSH move quickly to support in-depth studies of respiratory impacts, developmental effects and endocrine disruption for this rapidly dispersing cohort;" and

WHEREAS: Since the passage of the Zadroga Act, NIOSH has solicited two separate rounds of proposals for its WTC research funding; and

WHEREAS: The WTC Pediatric Program's research team, which has the most knowledge of WTC pediatric health impacts and the strongest clinical expertise, has submitted strong proposals with broad community support in response to both solicitations; and

WHEREAS: The WTC Health Program's Survivors Steering Committee, which includes representatives of CB1, has made repeated requests to NIOSH that the panel reviewing research proposals include pediatric expertise; yet, in its most recent review, NIOSH convened a panel lacking such expertise, raising serious questions about the fairness of the process; and

WHEREAS: NIOSH has failed to fund both proposals by the WTC Pediatric Program research team, including most recently "Early Identification of World Trade Center Conditions in Adolescents," a study that would not only add to knowledge about post-9/11 respiratory, cardiovascular and metabolic health, but would provide doctors with new tools for early detection of WTC health problems in adolescents; and

WHEREAS: Despite urging by its own scientific advisory body, by downtown parents and by the Survivors Steering Committee, NIOSH has chosen not to fund any research into the WTC physical health impacts of those exposed as children, now

THEREFORE BE IT RESOLVED THAT: CB #1 strongly urges NIOSH to fund "Early Identification of World Trade Center Conditions in Adolescents," immediately, as an important first step toward addressing key knowledge gaps about the ways in 9/11 has harmed the physical health of downtown's children, and aiding doctors in detecting and treating pediatric WTC health conditions, as provided for under the Zadroga Act, and

BE IT FURTHER RESOLVED THAT: CB#1 calls upon NIOSH to make the health of those who experienced 9/11 as children a research priority by funding research to arrive at a full understanding of WTC pediatric health impacts and to inform an excellent standard of WTC care.

COMMUNITY BOARD #1 – MANHATTAN
RESOLUTION

DATE: JANUARY 24, 2012

COMMITTEE OF ORIGIN: WTC REDEVELOPMENT

COMMITTEE VOTE:	8 In Favor	0 Opposed	0 Abstained	0 Recused
BOARD VOTE:	40 In Favor	0 Opposed	0 Abstained	0 Recused

Re: Request to Add Four Key Survivor Population Medical Studies to the WTC Health Program Research Priorities to be funded under The James Zadroga 9/11 Health and Compensation Act

WHEREAS: The James Zadroga 9/11 Health and Compensation Act of 2010, includes funding for medical studies on the survivor population; and

WHEREAS: There have been many more medical studies on the responder population than the survivor population over the past decade and children have been understudied; and

WHEREAS: The WTC Health Program at the World Trade Center Environmental Health Center of Excellence (WTC EHC) at Bellevue has submitted proposals for funding for the following four studies of the survivor population:

1. **Pediatric Studies** - In depth evaluation of pediatric effects of exposure, including lung function, mental health or developmental and endocrine effects. Effects of exposures during the vulnerable growth period are completely unknown.
2. **Blood Bank** -Ability to save blood for DNA, RNA and protein analyses for future studies of susceptibility to diseases including lung and other cancers. These samples could be used by multiple investigators in pediatric and adult studies now and in the future.
3. **Disease Mechanisms** - We need more studies to understand the mechanisms producing the symptoms reported by patients in the WTC Health Program.
4. **Data Center Analytic Funding** - The Data Centers need additional funding for center-specific analyses that may be required quickly. Two examples of this are the question that has arisen about latency of symptom onset and a case series of cancers in programs with continued cohort recruitment, now

THEREFORE
BE IT
RESOLVED
THAT: CB1 strongly supports the funding of these studies by the WTC EHC at Bellevue so that the environmental 9/11 health impact on children and adults who lived, attended school or worked in the area can be better understood.

Mount
Sinai
School of
Medicine

Department of Preventive Medicine
One Gustave Levy Place, Box 1057
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TESTIMONY

before

The New York City Council

Committee on Lower Manhattan Development

Committee on Civil Service and Labor

Hearing on

"Are cancer rates increasing in 9/11 responders?"

New York City

June 17, 2013

Presented by:

Laura Crowley, MD

Assistant Professor, Department of Preventive Medicine

and

Roberto Lucchini, MD

Professor and Vice-Chairman for Translational Medicine, Department of Preventive Medicine

Director, Division of Occupational and Environmental Medicine

Icahn School of Medicine at Mount Sinai

Good morning.

Honorable Chairpersons Margaret Chin and Michael Nelson and Members of the Committees on Civil Service and Labor of the New York City Council, I thank you for having invited us to present testimony before you today on the question of "Are cancer rates increasing in 9/11 responders?"

My name is Roberto Lucchini, MD. I am Professor and Vice-Chairman for Translational Medicine in the Department of Preventive Medicine of the Icahn School of Medicine at Mount Sinai. I am the Director of the Division of Occupational and Environmental Medicine, which contains the World Trade Center (WTC) Health Program. I also serve as the Director of the World Trade Center Data Center. My biosketch is attached to this testimony.

My name is Laura Crowley, MD. I am Assistant Professor in the Department of Preventive Medicine of the Icahn School of Medicine at Mount Sinai. I am also a medical doctor at the WTC Clinical Center of Excellence at Mount Sinai. My biosketch is attached to this testimony.

The World Trade Center Health Program provides specialized medical care, mental health care, and benefits counseling for those who worked in response and recovery operations at the World Trade Center, the Pentagon, and the passenger-jet crash site near Shanksville, PA. The program was created when the United States Congress passed the James Zadroga 9/11 Health and Compensation Act of 2010.

The services that the World Trade Center Health Program provides are made available through institutions that operate Clinical Centers of Excellence throughout the New York City metropolitan area. In addition to providing clinical services, we also perform health surveillance on 9/11 workers and volunteers – tracking the illnesses suffered by first responders over time. To support this activity, we have formed a Data Center within the Icahn School of Medicine at Mount Sinai to manage data, perform disease surveillance, and coordinate outreach efforts among the Clinical Centers.

Both the clinical and the surveillance programs are supported by grants from the National Institute for Occupational Safety and Health (NIOSH). It has been the responsibility of our programs at

Mount Sinai and of WTC Centers of Excellence in New York, New Jersey, and across the United States, with which we collaborate closely, to diagnose, treat, and document the illnesses that have developed in the workers and the volunteers who responded to 9/11.

Today, we shall present a summary of our medical findings about cancer incidence in World Trade Center rescue and recovery workers. I shall comment also on the critical need for continued follow-up and medical surveillance of WTC responders.

In the days, weeks, and months that followed September 11, 2001, more than 50,000 hard-working Americans from across the United States responded selflessly – without concern for their health or well-being – when this nation called upon them to serve. They worked at Ground Zero, the former site of the World Trade Center, and at the Staten Island landfill, the principal depository for WTC wreckage. They worked in the Office of the Chief Medical Examiner. They worked beneath the streets of lower Manhattan to search for bodies, to stabilize buildings, to open tunnels, to turn off gas, and to restore essential services.

During this time, World Trade Center rescue and recovery workers were exposed to an intense, complex, and unprecedented mix of pollutants and carcinogens. Recent studies have documented the persistence of physical and mental health problems among workers, due to sustained exposures to these toxic substances.

Cancer Incidence in World Trade Center Rescue and Recovery Workers. In particular, concern has arisen about the potential for increased risk of cancer among WTC responders. During the attacks, many carcinogenic chemicals were released into the air. In the hours immediately after the attacks, the combustion of jet fuel at high temperatures released soot, metals, benzene and other volatile organic compounds, and strong inorganic acids. The burning and subsequent collapse of the towers produced an enormous dust cloud, which released particulate matter containing asbestos; silica; cement dust; glass fibers; heavy metals including arsenic, beryllium, cadmium, chromium VI, and nickel; polycyclic aromatic hydrocarbons; polychlorinated biphenyls; and polychlorinated dibenzofurans and dibenzodioxins.

To date, four studies have investigated cancer incidence among WTC responders. Earlier this year, a team at the Icahn School of Medicine at Mount Sinai, along with other collaborators, published a paper in *Environmental Health Perspectives* about the incidence of cancer rates among WTC rescue and recovery workers. Our study compared cancer incidence in a cohort of approximately 20,000 workers enrolled in the WTC Health Program to incidence in the general population during the seven years after the 9/11 attacks. By comparing these rates, the study aimed to estimate associations according to levels of WTC-related exposure.

Overall, incidence rates of all cancers among WTC rescue and recovery workers were 15% higher than expected. Incidence rates for thyroid cancer, prostate cancer, combined hematopoietic and lymphoid cancer, and soft tissue cancers were also higher than expected. Conversely, incidence rates for cancers of the pancreas, nose, nasal cavity, middle ear, larynx, and corpus uteri were lower than expected.

Strengths of Findings. The findings of our study are concordant with other recent studies of cancer incidence in WTC responders. For example, papers written by Zeig-Owen et al (2011) and Li et al (2012) both showed higher cancer rates for WTC responders. They also both found elevated standardized incidence ratios (SIR) for thyroid, prostate, and certain hematological cancers.

Limitations of Findings. Due to short follow-up, long latency periods associated with cancer, and other characteristics of the cohort, the findings of this study should be interpreted with caution. Many occupational cancers manifest over a decade after carcinogenic exposure. Thus, it may be too soon to determine incidence for certain types of cancer among responders. In addition, WTC responders were substantially healthier than the general population at the time of exposure. Their jobs required periodic physical and mental fitness tests, and they were arguably more fit than most working populations. Therefore, these workers were at lower risk of cancer than the general U.S. population. Finally, factors like self-selection and underreporting of certain cancers to state registries may also affect the findings of the study.

Concluding Comments.

To date the Mount Sinai World Trade Center Health Program has successfully certified over 280 cancer cases. Each responders, clinical history, exposure history is reviewed in great detail by our providers at Mount Sinai. We then provide supportive documentation directly to the Administrator of the World Trade Center Health Program for certification. All patients approved for coverage may then be provided cancer services at no cost to themselves under the WTCHP.

Exposures in the aftermath of 9/11 were unusual in terms of their high intensity and the complex mix of known and suspected carcinogens involved. The Mount Sinai World Trade Center Health Program is proud to be able to provide this small service for those heroes who have suffered for years with so many health ailments related to their exposure. We are thankful for this opportunity and will continue to support the need for prolonged follow up assessing the risk of cancer and other chronic diseases in this vulnerable and uniquely exposed population.

Thank you. We shall be pleased to take your questions.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Laura Crowley, MD	Assistant Professor
eRA COMMONS USER NAME (credential, e.g., agency login) LAURACROWLEY	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Barnard College, Columbia University, NYC	BA	1990-1994	Biochemistry
Hahnemann School of Medicine, Phil. PA	MD	1995-1999	Medicine

A. Personal Statement

Dr. Crowley is a physician, board-certified in Internal Medicine and in Pulmonary/Critical Care Medicine. She serves currently as Deputy Director of the Data Center (DC) of the World Trade Center Health Program (WTCHP) at Mount Sinai. She has earned a strong regional reputation for excellence in pulmonary medicine as well as a reputation for strong academic leadership on the basis of her superb work in the WTC program, and she is beginning to build a national reputation of excellence.

As Deputy Director of the DC, Dr. Crowley is involved in every element of the Clinical Center work. She coordinated therevision of clinical examination components, with the difficult dual objective of improving clinical efficiency whilesimultaneously ensuring that monitoring data were captured in a fashion relevant to scientific research. Shedeveloped clinical protocols designed to streamline complex processes for both clinical and research work.

She refined methods of communication between the DCC and consortium clinics. She improved collaboration on a multitude of operational and scientific activities. She assists in the oversight of the Health Outcomes, Clinical Coordination, Member Services and Retention, Data Management and Program Support Cores. She is responsible for overseeing and leading the work of a professionally diverse staff of over 60 persons, among them physicians, epidemiologists, statisticians, data managers, and IT personnel.

In summary, Dr. Crowley amply fulfills the criteria for Deputy Director of the Clinical Center. Her resourcefulness and work ethic along with her managerial and leadership skills have enabled Dr. Crowley to excel in every position in which she has served during her time at Mount Sinai. Dr. Crowley is and will continue to be a valuable asset to the WTCHP.

A. Positions and Honors:

Positions and Employment

20012-present	Deputy Director of Clinical Operations at the World Trade Center Medical Monitoring and Treatment Program Data Coordination Center, Mount Sinai School of Medicine
2008-2012	Deputy Director of the World Trade Center Medical Monitoring and Treatment Program Data Coordination Center, Mount Sinai School of Medicine
2008-2011	Co-Director of the Disease Surveillance and Working Group Team in the World Trade Center Medical Monitoring and Treatment Program Data Coordination Center, Mount Sinai School of Medicine
2009-present	Associate Professor, Mount Sinai School of Medicine
2006-2009	Instructor, Mount Sinai School of Medicine
2007-2008	Clinical Core Director in the World Trade Center Medical Monitoring and Treatment Program Data Coordination Center, Mount Sinai School of Medicine
2007-2008	Medical Director of the National Program in the World Trade Center Medical Monitoring and Treatment Program, Mount Sinai School of Medicine
2005-2006	Instructor of Medicine, New York-Presbyterian Hospital-Weill Medical College of Cornell University New York, NY
2002-2005	Clinical Fellow, Division of Pulmonary and Critical Care Medicine New York Presbyterian Hospital-Weill Medical College of Cornell University New York, NY
1999-2002	Intern/Resident, Department of Medicine New York Presbyterian Hospital-Weill Medical College of Cornell University, New York, NY
Summer 1996	Clinical Research Assistant, New York University, New York Summer Intern, St. Lukes's/Roosevelt Hospital, New York
1994-1995	Clinical Research Assistant and Laboratory Manager ,New York University, New York
Summer 1993	Research Fellowship, Barnard College, Columbia University, New York
1991-1993	Laboratory Assistant, Barnard College, Columbia University, New York

Board Certifications and License

2000- American College of Physicians
2002- American Board of Internal Medicine
2003- American College of Chest Physicians
2004- Society of Critical Care Medicine

Certificates

2003 Conscious Sedation
2002 Advanced Cardiac Life Support
2002 Basic Cardiac Life Support
2002 Infection Control and Barrier Precautions
2002 Identification and Reporting of Child Abuse in NY State

Professional Memberships

2004-present	Society of Critical Care Medicine
2003-present	American College of Chest Physicians
2002-present	American Board of Internal Medicine
2000-present	American College of Physicians

B. Selected Peer Reviewed Publications in Chronological Order

1. Laura E. Crowley, Robin Herbert, Jacqueline M. Moline, Sylvan Wallenstein, Gauri Shukla, Clyde Schechter, Gwen S. Skloot, Iris Udasin, Benjamin J. Luft, Denise Harrison, Moshe Shapiro, Karen Wong, Henry S. Sacks, Philip J. Landrigan, Alvin S Teirstein. "Sarcoid like" granulomatous pulmonary disease in World Trade Center disaster responders. American Journal of Industrial Medicine, 54: 175–184.

2. Jacqueline M. Moline, Robin Herbert, Laura Crowley, Kevin Troy, Erica Hodgman, Gauri Shukla, Iris Udasin, Benjamin J. Luft, Sylvan Wallenstein, Philip J. Landrigan, David A. Savitz. Multiple Myeloma in World Trade Center Responders: A Case Series. JOEM 51 (8):896-902.

3. "Sarcoidosis in Responders to World Trade Center Disaster" abstract presented at World Association of Sarcoidosis and Other Granulomatous Disorders (WASOG), March 2009

4. Gwen S. Skloot, Clyde B. Schechter, Robin Herbert, Jacqueline M. Moline, Stephen M. Levin, Laura E. Crowley, Benjamin J. Luft, Iris G. Udasin and Paul L. Enright. Longitudinal Assessment of Spirometry in the World Trade Center Medical Monitoring Program. Chest 135 (2):492-498.

5. Udasin I, Schechter C, Crowley L, Sotolongo A, Gochfeld M, Luft B, Moline J, Harrison D, Enright P. Respiratory symptoms were associated with lower spirometry results during the first examination of WTCresponders. J Occup Environ Med. January 2011;53(1):49-54.

6. Wisnivesky JP, Teitelbaum SL, Todd AC, Boffetta P, Crane M, Crowley L, de la Hoz RE, Dellenbaugh C,Harrison D, Herbert R, Kim H, Jeon Y, Kaplan J, Katz C, Levin S, Luft B, Markowitz S, Moline JM, Ozbay F, Pietrzak RH, Shapiro M, Sharma V, Skloot G, Southwick S, Stevenson LA, Udasin I, Wallenstein S,Landrigan PJ. Persistence of multiple illnesses in World Trade Center rescue and recovery workers: a cohort study Lancet. September 2011;378(9794):888-97.

7. Lucchini RG, Crane MA, Crowley L, Globina Y, Milek DJ, Boffetta P, Landrigan PJ. "The World Trade Center Health Surveillance Program: Results of the First 10 Years and Implications for Prevention." G Ital Med Lav Ergon. July-September 2012;34(3 Suppl):529-33.

8. Solan S, Wallenstein S, Shapiro M, Teitelbaum SL, Stevenson L, Kochman A, Kaplan J, Dellenbaugh C, Kahn A, Biro FN, Crane M, Crowley L, Gabrilove J, Gonsalves L, Harrison D, Herbert R, Luft B, Markowitz SB, Moline J, Niu X, Sacks H, Shukla G, Udasin I, Lucchini RG, Boffetta P, Landrigan PJ. "Cancer Incidence in World Trade Center Rescue and Recovery Workers, 2001-2008." Environ Health Perspect. June 2013;121(6):699-704.

Ongoing Research Support
None

Completed Research Support
U10 OH008232 Landrigan (PI) 6/1/04-6/30/11
WTC RHC Data and Coordination Center
World Trade Center Health Program, Data Center at Mount Sinai School of Medicine
Role: Deputy Director

U10 OH008225 Crane (PI) 7/15/04-6/30/11
WTC RHC Clinical Center
World Trade Center Health Program, Data Center, Mount Sinai School of Medicine
Role: Assistant Professor, Preventive Medicine

BIOGRAPHICAL SKETCH

NAME **Lucchini, Roberto G.**	POSITION TITLE Professor of Occupational & Environmental Health
eRA COMMONS USER NAME ROBERTOLUCC	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Medical School, University of Brescia, Italy	M.D.	1987	Medicine
Medical School, University of Parma, Italy	Specialist	1991	Occupational Health

A. Personal Statement

I am a physician specialist in Occupational and Environmental Health and director of the Division of Occupational and Environmental Medicine at the Mount Sinai School of Medicine, NY. I am also faculty at the University of Brescia, Italy, where I supervise a unit for the assessment of neurobehavioral functions. With this unit we can apply several methods for the assessment of neurological functions including cognitive, motor, behavioral, sensory (olfactory, postural, tremorimetric) testing, based on advanced computerized platforms and traditional "pen and pencil" neuropsychological assessment. My research focuses on the health effects and mechanisms by which metals, pesticides, Persistent Organic Pollutants (e.g. PCBs, dioxins) and particulate matter produce toxicity, particularly on the Nervous System. With financial support from national, EU and NIH/NIEHS funds, I have developed a global lifetime exposure assessment of different age groups from prenatal life to children, workers, and elderly possibly causing late chronic neurodegenerative effects leading to Parkinson Diseases. As a physician toxicologist and epidemiologist my approach involves studying different exposure routes like inhalation, ingestion and the olfactory pathway. My research combines different expertise in air pollution and dietary intake, with the assessment of the balance between nutrients and toxicants in food. As an interdisciplinary scientist, I bridge the communication gap between these fields, providing information on how exposure targets the nervous system and other organs through different routes and along various life stages.

B. Positions and Honors

Position and Employment:

1988-1991	Intern/Resident in Occupational Health, University of Parma, Italy
1988-1992	Occupational Health Service, Public Health Agency of Brescia, Italy
1992-2002	Occupational Health Specialist, Clinic of Occupational Health, Civil Hospital of Brescia
2002-2005	Assistant Professor of Occupational & Environmental Health, University of Brescia
2004-present	Researcher Associate, University of California Santa Cruz, Environmental Toxicology
2005-present	Associate Professor of Occupational & Environmental Health, University of Brescia
2006-present	Visiting Professor, Harvard School of Public Health, Environmental Health
2012-present	Professor of Occupational and Environmental Medicine, Departmetn of Preventive Medicine, Mount Sinai School of Medicine. Director, Division of Occupational Health. Director, World Health Center Data Center. Director, NIOSH Education and Research Center of the New York/New Jersey Region.

Other Experience and Professional Memberships

Scientific organizer of the international meetings:

8th International Symposium on "Neurobehavioral methods and Effects in Occupational and Environmental Health", June 23-26, Brescia, Italy

International Workshop "Neurotoxic Metals: lead, mercury and manganese. From Research to Prevention". June 17-18, 2006, Brescia, Italy.

Membership: Italian Society of Occupational Health and Industrial Hygiene, Italian Society of Toxicology International Neurotoxicology Association, Fellow of the Collegium Ramazzini, Society Of Toxicology, International Society of Environmental Epidemiology

International Commission on Occupational Health (ICOH):

1. Secretary of the ICOH Scientific Committee on "Neurotoxicology and Psychophysiology" for the triennium 2000-2002 and 2003-2005
2. Chairman of the ICOH Scientific Committee on "Neurotoxicology and Psychophysiology" for the triennium 2006-2008 and 2009-2011
3. Secretary of the ICOH Sceintific Committee on the Toxicology of Metals for triennium 2012-2015

Editorial board of American Journal of Industrial Medicine, Neurotoxicology, The Science of the Total Environment (2006 to 2008), Advances in Pharmacology and Toxicology, International Journal of Pharmacology and Biological Sciences, Industrial Health, Safety and Health at Work.

C. Selected Peer-Reviewed Publications

Lucchini R, Apostoli P, Perrone C, Placidi D, Albini E, Migliorati P, Mergler D, Sassine MP, Palmi S, Alessio L Long Term Exposure To "Low Levels" Of Manganese Oxides And Neurofunctional Changes In Ferroalloy Workers. Neurotoxicol, 1999; 20 (2-3): 287-298

Lucchini RG, Albini E, Perrone C, Cortesi I, Placidi D, Bergamaschi E, Traversa F, Alessio L. Assessment Of Neurobehavioral Performance As A Function Of Current And Cumulative Lead Exposure. Neurotoxicol. 2000; 21 (5): 805-812

Lucchini RG, Calza S, Camerino D, Carta P, Decarli A, Parrinello G, Soleo L, Zefferino R, Alessio L. Application of a latent variable model for a multicenter study on early effects due to mercury exposure. Neurotoxicol, 24 (2003) 605–616.

Landrigan P, Nordberg M, Lucchini RG, Nordberg G, Grandjean P, Iregren A, Alessio L. The Declaration of Brescia on Prevention of the Neurotoxicity of Metals. Am J Ind Med 2007, 50(10):709-11

Lucchini RG, Guazzetti S, Zoni S, Donna F, Peter SA, Zacco A, Bontempi E, Salmistraro M, Zimmerman NJ, Smith DR. Tremor, olfactory and motor changes in Italian adolescents exposed to historical ferro-manganese emission. Neurotoxicology 2012. 33(4):687-96

Rentschler G, Covolo L, Ahmadi Haddad A, Lucchini RG, Zoni S, Broberg K. ATP13A2 (PARK9) polymorphisms influence the neurotoxic effects of manganese. Neurotoxicology. 2012 Aug;33(4):697-702

Bal-Price AK, Coecke S, Costa L, Crofton KM, Fritsche E, Goldberg A, Grandjean P, Lein PJ, Li A, Lucchini R, Mundy WR, Padilla S, Persico AM, Seiler AEM, and Kreysa J Advancing the Science of Developmental Neurotoxicity (DNT): Testing for Better Safety Evaluation. Altex 2012, 29; 2/12: 202-215

Lucchini RG, Zoni S, Guazzetti S, Bontempi E, Micheletti S, Broberg K, Parrinello G, Smith DR. Inverse association of intellectual function with very low blood lead but not with manganese exposure in Italian adolescents. Environ Res. 2012 Oct;118:65-71.

Meyer-Baron M, Schäper M, Knapp G, Lucchini R, Zoni S, Bast-Pettersen R, Ellingsen DG, Thomassen Y, He S, Yuan H, Niu Q, Wang XL, Yang YJ, Iregren A, Sjögren B, Blond M, Laursen P, Netterstrom B, Mergler D, Bowler R, van Thriel C. The neurobehavioral impact of manganese: Results and challenges obtained by a meta-analysis of individual participant data. Neurotoxicology. 2013; 36C:1-9

Zoni S, Lucchini RG. Manganese exposure: cognitive, motor and behavioral effects on children: a review of recent findings. Curr Opin Pediatr. 2013 Apr;25(2):255-60

The above papers deal with early health effects in workers and adults with environmental exposure. They illustrate Dr. Lucchini's expertise in human neurotoxicity of metals.

Lucchini RG, Benedetti L, Albini E, Alessio L Neurobehavioral Science In Hazard Identification And Risk Assessment Of Neurotoxic Agents – What Are The Needs For Further Development ? International Archives of Occupational and Environmental Health. (2005) 78: 427–437.

Gwiazda R, Lucchini RG, Smith D. Adequacy And Consistency Of Animal Studies To Evaluate The Neurotoxicity Of Chronic Low Level Manganese Exposure In Humans. Journal of Toxicology and Environmental Health A, 70: 594–605, 2007

Rohlman DS, Lucchini RG, Anger WK, Bellinger DC, van Thriel C. Neurobehavioral testing in human risk assessment. Neurotoxicology. 2008;29(3):556-67.

Meyer-Baron M, Schäper M, Knapp G, Lucchini R, Albini E, Bast-Pettersen R, He S, Yuan H, Niu Q, Wang XL, Yang YJ, Iregren A, Sjögren B, Blond M, Laursen P, Netterstrom B, Mergler D, Bowler R, van Thriel C. Statistical means to enhance the comparability of data within a pooled analysis of individual data in neurobehavioral toxicology.Toxicol Lett. 2011; 206(2):144-51

Lucchini RG, Riva MA, Sironi VA, Porro A. *Torvis oculis*: Occupational roots of behavioral neurotoxicology in the last two centuries and beyond. Neurotoxicology 2012; 33 652–659

The above papers illustrate Dr. Lucchini's expertise in the assessment of neurobehavioral effects

Zatta P, Lucchini RG, van Rensburg SJ, Taylor A. role of metals in neurodegenerative process: aluminum, manganese and zinc. Brain Res Bull, 2003, 62: 15-28

Lucchini RG, Albini E, Benedetti L, Borghesi S, Coccaglio R, Malara E, Parrinello G, Garattini D, Resola S, Alessio L. High prevalence of parkinsonian disorders associated to manganese exposure in the vicinities of ferroalloy industries. Am J Ind Med 2007; 50: 11: 788-800

Lucchini R, Squitti R, Albini E, Benedetti L, Borghesi S, Nan E. Manganese exposure as a determinant of Parkinsonian damage. Cell Biol Toxicol 2008; 24:445—448

Squitti R, Gorgone G, Panetta V, Lucchini RG, Bucossi S, Albini E, Alessio L, Alberici A, Melgari JM, Benussi L, Binetti G, Rossini PM, Draicchio F. Implications of metal exposure and liver function in Parkinsonian patients resident in the vicinities of ferroalloy plants. J Neural Transm. 2009 Oct;116(10):1281-7

Lucchini RG, Zimmerman N. Lifetime cumulative exposure as a threat for neurodegeneration: Need for prevention strategies on a global scale. NeuroToxicology 30 (2009) 1144–1148

Lucchini RG, Martin C, Doney B. From Manganism to Manganese-induced parkinsonism: a conceptual model based on the evolution of exposure. Neuro Mol Med, 2009;11(4):311-21.

Lucchini RG, Dorman DC, Elder A, Veronesi B. Neurological impacts from inhalation of pollutants and the nose-brain connection. Neurotoxicology 2012 33(4):838-41

Zoni S, Bonetti G, Lucchini R. Olfactory functions at the intersection between environmental exposure to manganese and parkinsonism. J Trace Elem Med Biol. 2012 26(2-3):179-82

Lucchini RL, Smith DR, Tjalkens RB. Manganese. In: Weiss B (Ed) Aging and Vulnerability to Environmental Chemicals: Age-related Disorders and Their Origins in Environmental Exposures, Royal Society of Chemistry, Cambridge UK, DOI:10.1039/9781849734660-00151. 2013, 151-181

The above papers illustrate Dr. Lucchini's expertise in the assessment of neurodegenerative effects

Zacco A, Resola S, Lucchini RG, Albini E, Zimmerman N, Guazzetti S, Bontempi E. Analysis of settled dust with X-ray Fluorescence for exposure assessment of metals in the province of Brescia, Italy. J Environ Monit. 2009 Sep;11(9):1579-85.

Borgese L, Zacco A, Pal S, Bontempi E, Lucchini RG, Zimmerman NJ, Depero LE. A new non-destructive method for chemical analysis of particulate matter filters: The case of manganese air pollution in Vallecamonica (Italy). Talanta 84 (2011) 192–198

Borgese L, Salmistraro M, Gianoncelli A, Zacco A, Bontempi E, Lucchini R, Zimmerman N, Pisani L, Siviero G, Depero LE. Airborne Particulate Matter (PM) filter analysis and modeling by Total reflection X-Ray Fluorescence (TXRF) and X-Ray Standing Wave (XSW). Talanta. 2012 Jan 30;89:99-104.

Roberta Ferri, Filippo Donna, Donald R. Smith, Stefano Guazzetti, Annalisa Zacco, Luigi Rizzo, Elza Bontempi, Neil J. Zimmerman, Roberto G. Lucchini Heavy Metals in Soil and Salad in the Proximity of Historical Ferroalloy Emission *Journal of Environmental Protection*, 2012, 3, 374-385

Eastman RR, Jursa TP, Benedetti C, Lucchini RG, Smith DR. Hair as a biomarker of environmental manganese exposure. Environ Sci Technol. 2013 Feb 5;47(3):1629-37.

Borgese L, Federici S, Zacco A, Gianoncelli A, Rizzo L, Smith DR, Donna F, Lucchini R, Depero LE, Bontempi E. Metal fractionation in soils and assessment of environmental contamination in Vallecamonica, Italy. Environ Sci Pollut Res Int. 2013 Jan 22. [Epub ahead of print]

The above papers illustrate Dr. Lucchini's expertise in exposure assessment of heavy metals

Mattioli S, Baldasseroni A, Bovenzi M, Curti S, Cooke RM, Campo G, Barbieri PG, Ghersi R, Broccoli M, Cancellieri MP, Colao AM, Dell'omo M, Fateh-Moghadam P, Franceschini F, Fucksia S, Galli P, Gobba F, Lucchini R, Mandes A, Marras T, Sgarrella C, Borghesi S, Fierro M, Zanardi F, Mancini G, Violante FS Risk factors for operated carpal tunnel syndrome: a multicenter population-based case-control study. BMC Public Health. 2009 Sep 16;9:343.

Lucchini RG, Somenzi V, Mossini E, Tieghi S, Borghesi S. [Development of the agricultural sector in Italy: need to harmonize production and health protection]. G Ital Med Lav Ergon. 2010 Oct-Dec;32(4 Suppl):396-9. Italian.

Mastroeni A, Lucchini R, Alessio L (2010). [Occupational Diseases In Construction Industry: The Experience Of the Occupational Health Institute Of Brescia In The Period 2006-2010]. Giornale Italiano Di Medicina Del Lavoro Ed Ergonomia. 340- 341. 32:4, Suppl 2. Italian

Borghesi S, Isgrò A, Lucchini R, Alessio L (2010). [Musculoskeletal Disorders Of The Upper Limb In Agriculture: Epidemiological Evidence]. Giornale Italiano Di Medicina Del Lavoro Ed Ergonomia. 307- 308. 32:4, Suppl 2. Italian

Isgrò A, Lucchini R, Alessio L (2010). [Consumption And Abuse Of Psychotropic Substances At Work: A Complex Phenomenon And A New Chance For The Occupational Physician]. Giornale Italiano Di Medicina Del Lavoro Ed Ergonomia. 298- 299. 32:4, Suppl 2. Italian

Albini E, Zoni S, Parrinello G, Benedetti L, Lucchini R. An integrated model for the assessment of stress-related risk factors in health care professionals. Ind Health. 2011;49(1):15-23.

Zoni S, Lucchini R. European Approaches to Work-Related Stress: A Critical Review on Risk Evaluation. Saf Health Work 2012; 3: 43-9

Lucchini RG, Crane MA, Crowley L, Globina Y, Milek DJ, Boffetta P, Landrigan PJ. The World Trade Center health surveillance program: results of the first 10 years and implications for prevention. G Ital Med Lav Ergon. 2012 Jul-Sep;34(3 Suppl):529-33.

Solan S, Wallenstein S, Shapiro M, Teitelbaum SL, Stevenson L, Kochman A, Kaplan J, Dellenbaugh C, Kahn A, Biro FN, Crane M, Crowley L, Gabrilove J, Gonsalves L, Harrison D, Herbert R, Luft B, Markowitz SB, Moline J, Niu X, Sacks H, Shukla G, Udasin I, Lucchini RG, Boffetta P, Landrigan PJ. Cancer Incidence in World Trade Center Rescue and Recovery Workers, 2001-2008. Environ Health Perspect. 2013 121:699-704

The above papers illustrate Dr. Lucchini's expertise in various topics of Occupational Medicine

D. Research Support
Ongoing Research Support:

T42 OH00842 Lucchini (PI) 7/1/11 – 6/30/16 1.2 CMs
NIOSH $1,109,669
The Education and Research Center provides a variety of continuing education opportunities to OH&S professionals. The core areas of programming are industrial hygiene, occupational health nursing, occupational medicine, and occupational safety. Programs are developed to meet the educational needs of these groups as well as other professionals working in the field of OH&S.

200-2011-39377 Lucchini (PI) 7/1/11-6/30/16 4.8 CMs
NIH $5,058,673
World Trade Center Responders Data Center
The Data Centers collect, analyze and report data. These data related functions involve creation and maintenance of uniform data sets in coordination with their corresponding Clinical Centers of Excellence. Other functions include maintaining a manual of procedures, protocol, data collection forms, and a reporting structure for monitoring and treatment services.

1R01ES019222-01 Lucchini, RG (co-PI) 9/10/2010–4/30/2015
NIH/NIEHS $2,848,986. Effort 45%
"Neurologic function in children exposed to ambient manganese". Neurocognitive and neuromotor functions are studied in adolescent with environmental exposure to manganese. The consortium includes the University of California, Santa Cruz (co-PI Donald R Smith), the Harvard School of Public Health, the Health School of Science, Purdue University

170174 SAL-68 Lucchini, RG (PI) 1/1/11-06/30/12
Lombardy Region, Italy € 320,000
"Metals and children". This project is part of a cooperation program of Regione Lombardia, Italy, with the University of Montreal, Québec, and will entail the assessment of exposure biomarkers and various environmental media for metal concentration in a companion study that will take place in Northern Italy and Québec. Biomarkers and environmental matrices will yield dose response assessment with neurobehavioral outcomes in children from both study sites.

Italian Work Compensation Institute (INAIL) Lucchini, RG (PI) 1/1/11-12/31/14
€ 150,000
"Interaction between genetic predisposition and occupational/environmental exposure to chemicals like metals, pesticides and solvents in the origin of parkinsonian disturbances".
In this case-control study, retrospective exposure to potential neurotoxic agents is assessed in parkinsonian patients resident in the province of Brescia, in relation to genetic predisposition.

VICTER NIH 11/1/12 – 10/31/15
Lucchini RG (co-PI) Direct cost 1st year: $22,912, indirect $15,924. Direct cost all years: $68,736, indirect $47,770
Title: Translational research in manganese biomarkers and neurodevelopment (subcontract with Brigham and Women's Hospital)
Project goals: Two critical issues in the neurotoxicology of Mn include the 1) extrapolation of animal results to humans, and 2) limitations in defining critical exposure windows in epidemiologic studies. We will employ tests in children in parallel to animal toxicology studies that also address Mn exposure in specific life stages.

Completed Research Support:

EU/6thFrameProgram FOOD-CT-2006-016253/WPI6, Lucchini, RG (PI), 3/1/06-2/28/11
3.0 Calendar Mos € 576,778
Effects of manganese on the brain
This study is part of the integrated project PHIME (Public health impact of long-term, low-level mixed element exposure in susceptible population strata. www.phime.org). Project goals is to evaluate the association between the exposure to neurotoxic metals including manganese and neurotoxic outcomes in a population of residents in the vicinity of former ferroalloy plants in Northern Italy. The study population includes children, workers, elderly and pregnant women according to a lifetime exposure concept.

Italian Institute of Prevention and Safety at Work (ISPESL) PFA/DML/UO2/2002
Roberto Lucchini (PI) May 03/May 06
Title: Diagnostic markers of parkinsonian syndromes with occupational and environmental origin
Project goals: Assessment of possible differential markers for the diagnosis of parkinsonian disturbances through a comparison of parkinsonian patients with different degree of exposure to neurotoxic agents

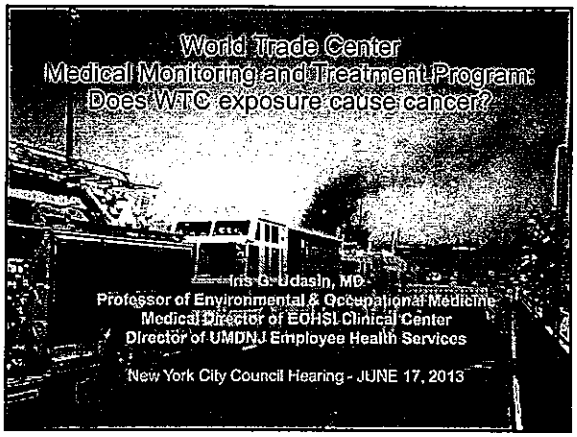
Italian Institute of Prevention and Safety at Work (ISPESL) PFA/DML/UO3/2001
Roberto Lucchini (PI) Oct 01/Jul 05
Title: Alzheimer Disease: study of the risk related to occupational factors
Project goals: Evaluation of the risk associated to occupational exposure to neurotoxic agents through a case-control study

National Research Council of Italy (CNR) 98.728.PS13
Roberto Lucchini (PI) Jun 98/Dec 01
Title: Frequency of Parkinsonian disturbances among residents in the vicinity of ferroalloy industries
Project Goals: To assess the prevalence of parkinsonian disturbances in the population with prolonged environmental exposure to manganese caused by the presence of ferroalloy industries

Italian Ministry of University and Research (MURST) COFIN98
Lorenzo Alessio (PI) Jan 98/ Dec 00
Title: Assessment of effects due to low doses of inorganic mercury following environmental and occupational exposure: human and in vitro studies on specific toxicity mechanisms.
Project goals: Study of the neurological, renal and immunological effects due to mercury exposure through occupation, dental amalgams and fish eating

Italian Institute of Prevention and Safety at Work (ISPESL) RC 38/97
Roberto Lucchini (PI) Nov 98/Nov 00
Title: Neurophysiological and neurochemical indicators of early effects for occupational exposure to heavy metals.
Project Goals: Assessment of neurophysiological and neurochemical indicators of early effects due to occupational exposure to heavy metals such as lead, manganese and mercury

Italian Institute of Prevention and Safety at Work (ISPESL) RN 44/96
Roberto Lucchini (PI) Jul 97/Jul 99
Title: Early neurotoxic effects in manganese exposed workers
Project Goals: Assessment of early effects of manganese exposure on neurobehavioral, neuroendocrine functions in ferroalloy workers



"Cancer Incidence in World Trade Center Rescue and Recovery Workers, 2001-2008"

Samara Solan,[1] Sylvan Wallenstein,[1] Moshe Shapiro,[1] Susan L.Teitelbaum,[1] Lori Stevenson,[1] Anne Kochman,[1] Julia Kaplan,[1] Cornelia Deilenbaugh,[1] Amy Kahn,[2] F. Noah Biro,[3] Michael Crane,[1] Laura Crowley,[1] Janice Gabrilove,[3] Lou Gonsalves,[4] Denise Harrison,[5] Robin Herbert,[1] Benjamin Luft,[6] Steven B. Markowitz,[7] Jacqueline Moline,[8] Xiaoling Niu,[9] Henry Sacks,[1] Gauri Shukla,[1] Iris Udasin,[10] Roberto G. Lucchini,[1,11] Paolo Boffetta,[12] and Philip J. Landrigan[1]

[1] Department of Preventive Medicine, Icahn School of Medicine at Mount Sinai, New York, NY
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"Cancer Incidence in World Trade Center Rescue and Recovery Workers, 2001-2008"

Abstract

Background: World Trade Center (WTC) rescue and recovery workers were exposed to a complex mix of pollutants and carcinogens.
Objective: The purpose of this investigation was to evaluate cancer incidence in responders during the first 7 years after 11 September 2001.
Methods: Cancers among 20,984 consented participants in the WTC Health Program were identified through linkage to state tumor registries in New York, New Jersey, Connecticut, and Pennsylvania. Standardized incidence ratios (SIRs) were calculated to compare cancers diagnosed in responders to predicted numbers for the general population. Multivariate regression models were used to estimate associations with degree of exposure.
Results: A total of 575 cancers were diagnosed in 552 individuals. Increases above registry-based expectations were noted for all cancer sites combined (SIR = 1.15; 95% CI: 1.06, 1.25), thyroid cancer (SIR = 2.39; 95% CI: 1.70, 3.27), prostate cancer (SIR = 1.21; 95% CI: 1.01, 1.44), combined hematopoietic and lymphoid cancers (SIR = 1.36; 95% CI: 1.07, 1.71), and soft tissue cancers (SIR = 2.26; 95% CI: 1.13, 4.05). When restricted to 302 cancers diagnosed ≥ 6 months after enrollment, the SIR for all cancers decreased to 1.06 (95% CI: 0.94, 1.18), but thyroid and prostate cancer diagnoses remained greater than expected. All cancers combined were increased in very highly exposed responders and among those exposed to significant amounts of dust, compared with responders who reported lower levels of exposure.
Conclusion: Estimates should be interpreted with caution given the short follow-up and long latency period for most cancers, the intensive medical surveillance of this cohort, and the small numbers of cancers at specific sites. However, our findings highlight the need for continued follow-up and surveillance of WTC responders.
Key words: cancer, cancer incidence, cancer registry, epidemiology, September 11th, World Trade Center, WTC Health Program

Case Identification

- Linkage through cancer registries of New York, New Jersey, Connecticut, and Pennsylvania -- 98% of population
- Information compiled of all consented responders (n = 20,984) enrolled in WTC MMTP, July 2002 – December 31, 2008

Selected Characteristics of responders

Characteristic	n (%)
Sex	
Male	17,781 (85)
Female	3,203 (15)
Median age on 9/11/2011 (years)	38
Age on 9/11/2001 (years)	
<40	11,835 (56)
≥40	9,149 (44)
Race/ethnicity	
Black	2,666 (13)
White (non-Hispanic)	12,337 (59)
White Hispanic	1,245 (6)
Other race	553 (3)
Unknown/missing	183 (1)
Smoking history	
Current	3,374 (16)
Former	5,054 (24)
Never	12,240 (58)
Missing	316 (2)
Occupation	
Protective Services	8,785 (42)
Construction	5,138 (24)
CM&IRG	2,084 (10)
Other	4,018 (19)
Missing	978 (5)

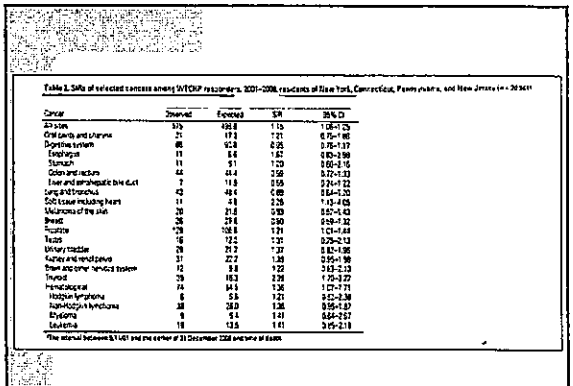
Table 2. SIRs of selected cancers among WTCHP responders, 2001–2008, residents of New York, Connecticut, Pennsylvania, and New Jersey (n = 20,984)

Cancer	Observed	Expected	SIR	95% CI
All sites	575	499.8	1.15	1.06–1.25
Oral cavity and pharynx	21	17.3	1.21	0.75–1.85
Digestive system	66	52.8	1.25	0.97–1.57
Esophagus	11	8.4	1.31	0.65–2.34
Stomach	11	9.1	1.20	0.60–2.15
Colon and rectum	44	44.4	0.99	0.72–1.33
Liver and intrahepatic bile duct	7	11.8	0.59	0.24–1.22
Lung and trachea	42	48.4	0.86	0.64–1.20
Soft tissue including heart	11	4.9	2.26	1.13–4.05
Melanoma of the skin	20	21.8	0.92	0.57–1.43
Breast	35	29.6	1.20	0.84–1.32
Prostate	128	105.8	1.21	1.01–1.44
Testis	16	12.5	1.28	0.73–2.13
Urinary bladder	20	21.2	0.94	0.61–1.46
Kidney and renal pelvis	31	22.7	1.36	0.95–1.90
Brain and other nervous system	12	9.8	1.22	0.63–2.13
Thyroid	29	18.3	2.39	1.70–3.27
Hematological	74	54.5	1.36	1.07–1.71
Hodgkin lymphoma	6	5.5	1.21	0.52–2.38
Non-Hodgkin lymphoma	38	28.0	1.36	0.96–1.87
Myeloma	9	9.1	1.01	0.64–1.57
Leukemia	19	13.5	1.41	0.85–2.19

*The interval between 9/11/01 and the earlier of 31 December 2008 and time of death.

Cancer Cases Identified in New Jersey

Hematopoietic Malignancies

- Multiple Myeloma
  - 4 cases
- Non-Hodgkin's Lymphoma
  - 9 cases
  - 6 are law enforcement
- CLL
  - 2 cases
- AML
  - 1 case
- Myelofibrosis
  - 1 case

Head and Neck Cancer

- 6 cases in NJ, 5 are squamous cell

Age at diagnosis: (39, 41, 42, 41, 40, 63)

1- Construction worker
2- Verizon / communications
2- Law enforcement
1- NJ Firefighter

Questions

Iris G. Udasin, MD
Professor of Environmental & Occupational Medicine
Medical Director of EOHSI Clinical Center
Director of UMDNJ-RWJMS Employee Health Services

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Testimony NYC Council June 17, 2013

As World Trade Center investigator from New Jersey, I am concerned about the alarming numbers of cancers in our patient population. The first slide depicts the Elizabeth Firefighters crossing on the Staten Island ferry to aid their brother company in Staten Island to rescue people at the disaster site. One of my sickest patients is a firefighter from Elizabeth who was performing search and rescue duties for three weeks in September alongside his fellow firefighters. He was diagnosed with throat cancer, a disabling and disfiguring rare cancer. He is one of many brave responders who has been diagnosed with cancer in the years following the 9-11 tragedy.

The second slide shows the publication in Environmental Health Perspectives that indicates the excess in cancers diagnosed in responders in the years between 2001 and 2008 , This represents the NY NJ consortium of responders and includes patients examined at Mt Sinai, NYU, Queens, Stony Brook, and UMDNJ (soon to be called Rutgers Biomedical sciences). This study was a painstaking effort and represents detailed analysis of pathology reports on our cancers patients and linkages with the cancer registries of the 4 most common state registries: New York, New jersey, Connecticut and Pennsylvania. Because of the effort to confirm these results, the material presented is an under estimate of the number of cancer cases in this population as we are not reporting on the many cases diagnosed from 2009 to the present.

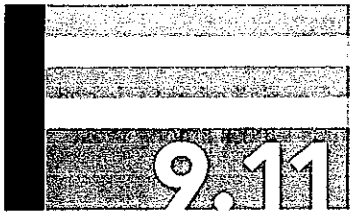
The population includes law enforcement, communications, construction, and firefighters who are not FDNY. The population is predominately male. More than half of the total population was under 40 while working at the disaster site. Almost 60% of the

population were never smokers.

A total of 575 cancers of all types were confirmed, compared to an expected number of 498. The rate of all cancers was elevated to a statistically significant level. Hematologic malignancies were elevated to a significant level, as were soft tissue, thyroid and prostate cancer. While there may be some question of screening bias for a common cancer like prostate, where the PSA has been used as a screening test, there is no screening test that is commonly used to detect blood cancers. Furthermore, in reviewing the numbers presented in this table, there are a number of rare cancers including oral cancer and pharynx, that may be elevated, but have not yet achieved statistical significance.

I would like to speak to you concerning cases that have been seen in New Jersey, Our largest county of patients seen in Piscataway location is Staten Island. Furthermore, we see residents of many other upstate New York counties that are Rt 287. We have many NYC retirees who live in Middlesex, Monmouth, and Ocean counties. We note that we have seen more than 20 patients with hematopoetic malignancies, including 9 with non-Hodgkin's lymphoma and 4 with multiple myeloma. As noted, a significant number of these people are law enforcement, and are patients who have not been aware of chemical or other hazardous exposure prior to 9-11.

We have seen 6 patients with head and neck cancers, one is a retired NYC police officer. At this time, we consider this an alarming trend, and we anticipate further cases of cancer being diagnosed in our patients. There is the need for further screening and diagnostic testing, as well as treatment of effected individuals and support for their family members. I appreciate the chance to speak today.



Monitoring and Treatment

c/o Robert Spencer
Director of Media Services
Organization of Staff Analysts
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New York, NY 10010

Steering Committee Members

105 Duane Street Residents
125 Cedar Street Residents
9/11 Environmental Action
Beyond Ground Zero Network
Civil Service Employees Association
Communication Workers of America, District 1
Concerned Stuyvesant Community
District Council 37, AFSCME
Ecuadorian International Center, Inc.
Good Old Lower East Side (GOLES)
Henry Street Settlement
Independence Plaza North Tenants' Association
Manhattan Community Board 1
Manhattan Community Board 2
Manhattan Community Board 3
New York City
New York City Health & Hospitals Corporation WTC Environmental Health Ctr
New York Committee for Occupational Safety and Health
New York From the Ground Up
New York State Laborers' Union
New York State Public Employees Federation
The Organization of Staff Analysts
Rebuild.Downtown.Our.Town
Rebuild with a Spotlight on the Poor
Southbridge Parent and Youth Association
StuyHealth
United Jewish Council of the East Side
University Settlement
WTC Community Labor Coalition
World Trade Center Residents Coalition

World Trade Center Health Program

Survivors Steering Committee

June 17, 2013

Hon. Margaret Chin, Chair,
Lower Manhattan Redevelopment Committee

Hon. Michael Nelson, Chair
Civil Service and Labor Committee

New York City Council
City Hall
New York NY 10007

Dear Council Members Chin and Nelson:

Re: June 17, 2013 City Council Oversight Hearing: "Are Cancer Rates Increasing in 9/11 Responders?"

On behalf of the World Trade Center Health Program's Survivors Steering Committee, I would like to thank the Civil Service & Labor and Lower Manhattan Redevelopment Committees for the opportunity to provide this testimony. The James Zadroga 9/11 Health and Compensation Act provides health care for WTC-certified conditions to both WTC Responders and Survivors – residents, students and area workers and others whose health was harmed by the destruction of the World Trade Center in the September 11th attacks, and its aftermath.

The committee I chair, the Survivors Steering Committee (SSC), was established by the Zadroga Act to advise the federal health program so as to ensure that it meets the 9/11-related health needs of WTC Survivors. The SSC is presently comprised of representatives of Manhattan Community Boards 1, 2, and 3, and a range of community and environmental groups, and labor unions advocating on behalf of the 9/11-affected survivor community, as well as individual survivors themselves.

The collapse of the twin towers on September 11, 2001 dispersed over one million tons of hazardous contaminants throughout lower Manhattan, penetrating buildings through a variety of routes, and triggered massive fires that would continue to pollute the area for months after 9/11.

The exposures that occurred on the morning of 9/11, and those that occurred for weeks and months thereafter were extraordinary in magnitude and intensity.

In addition, with respect to Survivors, it is important to remember that less than 19% of downtown apartments were cleaned in the EPA's 2002-2003 indoor cleanup, a program which excluded the area above Canal Street and all workplaces in the affected area. Experts, including members of the EPA's WTC Expert Technical Review Panel, have

affirmed that in the absence of a proper indoor cleanup, exposures to lead, asbestos, PAHs, and myriad other toxic and carcinogenic substances deposited indoors may be of long duration, increasing the risk of serious illness among those living or working downtown.

Given the complex chemical composition of the smoke and dust, the potential for synergistic impacts from simultaneous exposures to substances that were carcinogenic, mutagenic, immune-toxic and endocrine-disrupting was great.

The addition of 50 cancers to the list of WTC conditions by the federal WTC Administrator, Dr. John Howard, was a principled and scientifically sound decision that ensures that responders and survivors alike will have access to the health care they need and deserve for 9/11-related cancers.

Recognizing that comprehensive epidemiological evidence will come too late for the majority of survivors and responders who develop cancers from their exposures, Dr. Howard based his decision on extensive peer-reviewed evidence of the cancer-causing potential of the70 known and suspected human carcinogens that were part of the toxic mix in WTC dust and smoke. Utilizing the classification systems of two preeminent scientific agencies, the International Agency for Research on Carcinogens (IARC), a program of the World Health Organization, and the US-based National Toxicology Program (NTP), a list of cancer sites for each WTC carcinogen was generated. This list was based on decades of research, including occupational and epidemiological studies that established links between exposures to that specific chemical and one or more cancers. Given that this method could not take into account the fact that survivors and responders suffered synergistic exposures which greatly multiply their risk of disease, we would characterize the method as conservative.

The special vulnerability of children to harm from environmental exposures, along with the recognition that the population of exposed children is too small for cancer findings to reach statistical significance led, appropriately, to a decision to include all childhood cancers. All cancers that appear in 9/11-affected people under 20 years old at the time of diagnosis are now covered.

In order for an individual survivor or responder to obtain coverage under Zadroga for a diagnosed cancer, that person must go through a multi-step process of certification. This entails an evaluation by a physician trained in WTC environmental exposure assessment. That doctor must determine, upon examination, whether 9/11-related exposures were 'substantially likely to have been a significant factor in aggravating, contributing to or causing' the cancer. Following an affirmative determination, the cancer must then be certified as WTC-related by the Administrator. Only when an individual's cancer is so certified, is his or her cancer care covered under the Act.

Many in the community are not yet aware of this new expansion of coverage, so we ask that the Council please include the survivor program in any resolution that emerges from this hearing.

By way of an update, since the implementation of the Administrator's directive, more than 76 residents, students and area workers have had their cancers certified as WTC-related by the WTC Health Program's Survivor Program. Many residents and others are also unaware that the WTC Centers of Excellence are working to develop an extensive cancer provider network in the New York City area, available to survivors and responders alike, with the goal of assuring patient choice and an excellent standard of cancer care. Currently, that network not only includes the New York City Health and Hospitals Corporation, SUNY Stony Brook and Mount Sinai, but also Memorial Sloan Kettering and other premiere cancer treatment centers.

The April 2013 study by Mount Sinai which is a focus for today's hearing is the third early assessment of cancer outcomes for responders. Like the prior studies conducted by the FDNY and by the WTC Health Registry, the Sinai study

of cancer incidence among responders shows an increase in thyroid, blood and lymph and prostate cancers, and also in soft tissue cancer. These studies reveal a signal that experts expect will grow stronger. Moreover, both the FDNY and Mount Sinai studies detected an increase incidence for all cancer sites combined.

The SSC strongly supports such studies. Such research is only possible with a strong foundation of ongoing surveillance of the WTC Health Program's patient, monitoring and registry populations. The SSC affirms the need for intensive surveillance and longer follow-up, especially for many cancers and other diseases that have longer latencies.

Finally, I would like to address an additional research priority. The SSC and Community Boards 1, 2 and 3 have called on the WTC Health Program to address the fact that we know very little about the physical health effects of the WTC disaster on the more than 30,000 children living or attending school or daycare downtown. Research on pediatric environmental health effects of 9/11, including respiratory, developmental and endocrine impacts should be an immediate WTC Health Program priority.

We urgently need an understanding of whether or how affected children are at increased risk for late emerging diseases, including cancers, as a result of their unprecedented WTC environmental exposures Research should also investigate methods of early detection and intervention to prevent the progression of disease, thus offering those exposed to WTC as children the best quality of life.

Thank you for your consideration.

Respectfully,

Kimberly Flynn

Kimberly Flynn
Chair
flynnktm@aol.com
917 647-7074

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Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

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Name: DANNY NOONAN

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I represent: FDNY RETIRED

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Date: June 17 2013

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Name: Dr. Carolyn Greene

Address: _____

I represent: DOHMH

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Name: ROBERTO LUCCHINI

Address: Mount Sinai

I represent: Mount Sinai WTC Health Pgm

Address: 17 East 102nd New York

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Name: Catherine McVay Hughes

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I represent: CBI

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Name: Carolyn Greene

Address: _____

I represent: The NYC Health Department

Address: _____

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Date: 7/17/13

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Name: LAURA CROWLEY, MD

Address: MOUNT SINAI

I represent: MOUNT SINAI WORLD TRADE CENTER HEALTH PROGRAM

Address: 3rd Floor Annenberg, NY, NY

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Name: David Prezant

Address: FDNY

I represent: Chief Medical Officer and Special Advisor on Health Policy, FDNY

Address:

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Date: _____

(PLEASE PRINT)

Name: Iris Udasin MD

Address: EOHSI Clinical Center - UMDNJ

I represent: UMDNJ - Rutgers Biomedical Group

Address: 170 Frelinghuysen Rd
Piscataway, NJ 08854

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Date: 6/17

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Name: John Doe

Address: _____

I represent: FraGood Foundation

Address: _____

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☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Mary Pasillo

Address: 125 Cedar St

I represent: SSC & WTC Health Program

Address: _____

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