WTC Research: Extending Reach, Engagement and Impact-Methods and Metrics

STAC Meeting-NYC
November 3, 2016
Max R. Lum Ed.D. MPA
e-Communication and Research Translation
Office of the Director, NIOSH
Number of Research Projects by Year Funded (n= 57, $91.3M)

2011 — 8 x 3-year projects funded
2012 — 5 x 4-year & 5 x 2-year projects funded
2013 — 3 x 3-year & 3 x 2-year projects funded
2014 — 10 x 2-year projects funded
2015 — 7 x 1-year projects funded
2016 — 6 x 5-year; 3 x 4 year; 4 x 3 year; 3 x 2 year
Traditional Outreach

Principal Investigators meetings

Partner Outreach Activities

- Feel Good Foundation
- 911 EA
- Voices
- NYCOSH
- Community Boards
- Steering Committees
Research to Care “Availability” Conference

- September 16, 2017
Making Research More Social
Editing Wikipedia
The Immediate Benefit

The message is distributed across Social Media channels...
The Added Benefit
The Long Term Benefit
WTC Research Gateway
NIOSH has funded research projects designed to help answer critical questions about the physical and mental health conditions related to the 9/11 terrorist attacks. This research plays a vital role in the health conditions currently covered by the WTC Health Program (see WTC-Related List of Covered Health Conditions) and the Program’s ability to add health conditions to the list. The areas of interest are based on the Program’s Research Agenda and include, but are not limited to:

- biomarkers of exposures or health outcomes;
- exposure-response relationships;
- improvements in diagnosis and treatment;
- patterns of illness (age, gender, etc.);
- risk factors for disease; and
- other research studies on WTC-related health conditions or emerging conditions.

See more about our Research Agenda...
## Research Projects

### Search Research Projects

Search Suggestions:
- **Phrase:** World Trade Center
- **Principal Investigator:** Charles Hall
- **Project Number:** 1U01-Oh010730-01
- **Fiscal Year Awarded:** 2014

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<table>
<thead>
<tr>
<th>Title</th>
<th>Project Number</th>
<th>Principle Investigator</th>
<th>Fiscal Year Awarded</th>
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<tr>
<td>A Pilot Test of the Relaxation Response Resiliency Program (3RP) in Spanish Speaking World Trade Center Disaster Survivors with PTSD</td>
<td>1U01-OH010996-01</td>
<td>Lucia Ferri, PhD</td>
<td>2015</td>
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<td>Childhood Exposures to Persistent Organic Pollutants in the World Trade Center Disaster and Cardiovascular Consequences</td>
<td>1U01-OH010714-01A1</td>
<td>Leonardo Trasande, MD MPP</td>
<td>2015</td>
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<td>Clinical Characteristics and Outcomes of WTC-Associated Sarcoidosis</td>
<td>1U01-OH010993-01</td>
<td>Thomas Aldrich, MD</td>
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<td>Cognitive Function among World Trade Center Rescue and Recovery Workers - Direct Effect or Mediation by Social Support</td>
<td>1U01-OH010988-01</td>
<td>Cheryl Stein, PhD</td>
<td>2015</td>
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<td>Deciphering Biological Linkages between PTSD and Respiratory Disease in WTC Responders</td>
<td>1U01-OH010718-01</td>
<td>Bejamin Luft, MD</td>
<td>2014</td>
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<td>Epigenetic Linkage between PTSD and Respiratory Disease in WTC Responders</td>
<td>1U01-OH010416-01</td>
<td>Bejamin Luft, MD</td>
<td>2012</td>
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<td>Biorepository of Cancer Tissue Samples from WTC Responders</td>
<td>1U01-OH010512-01A1</td>
<td>Emanuela Taioli, PhD MD</td>
<td>2014</td>
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<td>Post-9/11 Cancer Incidence in FDNY Firefighters</td>
<td>1U01-OH010728</td>
<td>Mayris Webber, DrPH</td>
<td>2014</td>
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<td>Prostate Cancer Risk and Outcome in WTC Respondents</td>
<td>1U01-OH010396-01A1</td>
<td>Emanuela Taioli, PhD MD</td>
<td>2013</td>
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<tr>
<td>Cancer Among WTC Responders: Enhanced Surveillance, Exposure Assessment, and Cancer Specific Risks</td>
<td>200-2011-41815</td>
<td>Paolo Boffetta, MD</td>
<td>2011</td>
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<td>Cohort Studies of Incident Cancers in the FDNY WTC Responder Population</td>
<td>200-2011-39489</td>
<td>David Prezant, MD</td>
<td>2011</td>
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Evaluation of Distal Airway Injury Following Exposure to World Trade Center Dust

Description

The goal of the present proposal is to enhance characterization of World Trade Center (WTC)-related lung disease using lung function measurements that can detect lung injury in addition to abnormalities identified in standard spirometry. The proposed studies are based on the concept that spirometry may identify airway injury as a reduction in lung volume or air flow, however, spirometry can often be normal even in symptomatic patients, particularly when injury is located in the distal airways.

Research Objectives

To enhance characterization of airway injury in subjects enrolled in the Bellevue Hospital WTC EHC by evaluating spirometry and assessment of distal airway function utilizing oscillometry.

To determine the relationship between development of distal airway dysfunction and simultaneous development of respiratory symptoms during induced bronchoconstriction in subjects enrolled in the Bellevue Hospital WTC EHC.

To determine longitudinal lung function as assessed by spirometry and oscillometry in a diverse population exposed to WTC dust while undergoing standardized evaluation and therapy.

The goal of this study is to enhance characterization of World Trade Center (WTC) related lung disease using lung function measurements that can detect lung injury in addition to abnormalities identified in standard spirometry. The research direction is based on the concept that spirometry may identify airway injury as a reduction in lung volume or air flow, however, spirometry can remain normal even in symptomatic patients, particularly when injury is located in the small or distal airways. The studies build upon prior histologic and functional evidence for distal airway abnormalities as a manifestation of obstructive lung diseases. Data have demonstrated:
Impact

A "Small Airway Disease Syndrome" provides a mechanism for respiratory disease following WTC dust exposure even in subjects with normal screening spirometry. Addition of forced oscillation to routine assessment of spirometry in the clinical setting uncovered abnormalities in lung function in a persistently symptomatic population with normal spirometry. Studies confirmed a dose response relationship between small airway dysfunction to both magnitude of WTC dust exposure, severity of symptoms and reactivity in small airways. Longitudinal data demonstrated improvement of small airway function in subjects with acute response to bronchodilator at baseline. The presence of small airway abnormalities suggests a potential target for treatment, particularly for subjects who remain symptomatic despite usual medical care.

Contributors

WTC EHC: Joan Reibman, M.D., Professor of Medicine; Roberta M. Goldring, M.D., Professor of Medicine; Yongzhao Shao, Ph.D., Professor of Environmental Medicine; Mengli Liu, Ph.D., Associate Professor of Environmental Medicine; Michael Marmor, Ph.D. Professor of Population Health; Caralee Caplan-Shaw, M.D., Assistant Professor of Medicine; Meredith Turetz, M.D., Assistant Professor of Medicine; Deepak Pradhan, M.D., Instructor of Medicine; Angeliki Kazeros, M.D., Assistant Professor of Medicine; Beno W. Oppenheimer, M.D., Assistant Professor of Medicine; Denise Harrison, M.D., Assistant Professor of Medicine; Ioannis Vahos, M.D., Assistant Professor of Radiology; Sam Parsia, M.D., Assistant Professor of Medicine; Meng Qian, Research Associate; Quynh Chen, Research Associate; Samantha Kalah, Research Associate; Maria Elena Fernandez-Boros, Database Manager

NYC DOHMH: Stephen Friedman, M.D.; Carrie Maslow, Dr.PH.; Mark Farfel, Sc.D.

Publications

- Elevated peripheral eosinophils are associated with new-onset and persistent wheeze and airflow obstruction in world trade center-exposed individuals

  The Journal of asthma: official journal of the Association for the Care of Asthma

  Authors: Parsia, S., Kazeros, A., Caplan-Shaw, C., Patrawalla, P., Goldring, R., Maa, M. T., Berger, K. I., Turetz, M., Qian, M., Shao, Y., Reibman, J., Liu, M., Rogers, L.

  Record Number: 765


  Abstract: BACKGROUND: Exposure to World Trade Center (WTC) dust and fumes is associated with the onset of asthma-like respiratory symptoms in rescue and recovery workers and exposed community members. Eosinophilic Inflammation with Increased Lung and Peripheral Eosinophils has been described in subpopulations with asthma. We hypothesized that persistent asthma-like symptoms in WTC-exposed individuals would be associated with systemic inflammation characterized by peripheral eosinophils.

  METHODS: The WTC Environmental Health Center (WTC EHC) is a treatment program for local residents, local workers, and cleanup workers who suffered WTC-related symptoms. Patients undergo a standardized evaluation including questionnaires and complete blood count. Between September 2005 and March 2009, 246 individuals enrolled in the program and were available for analysis. Individuals with preexisting respiratory symptoms or lung disease diagnoses prior to September 2001 and current or significant tobacco use were excluded.

  RESULTS: One thousand five hundred and seventeen individuals met the inclusion criteria. Patients had a mean age of 47 years, were mostly female (51%), and had a diverse race/ethnicity. Respiratory symptoms that developed after WTC dust/fume exposure and remained persistent included dyspnea on exertion (68%), cough (57%), chest tightness (47%), and wheeze (33%). A larger percentage of patients with wheeze had elevated peripheral eosinophils compared with those without wheeze (21% vs. 13%, p < 0.001). Individuals with elevated peripheral eosinophils were more likely to have airflow obstruction on spirometry (16% vs. 7%, p = 0.005).

  CONCLUSION: Peripheral eosinophils were associated with wheeze and airflow obstruction in a diverse WTC-exposed population. These data suggest that eosinophils may participate in lung inflammation in this population with symptoms consistent with WTC-related asthma.

  Keywords: Adolescent, adult, Airway Obstruction, blood, Blood Cell Count, Eosinophils, etiology, Female, Humans, Leukocytes, Mononuclear, male, Middle Aged, New York
Longitudinal spirometry among patients in a treatment program for community members with World Trade Center-related illness

Authors: Liu, M., Goldring, R. M., Parsia, S., Turetz, M., Kazeros, A., Qian, M., Caplan-Shaw, C., Cheng, Q., Elena Fernandez-Beros, M., Shao, Y., Reltman, J., Berger, K. I., Marmor, M.

Record Number: 813


Abstract: OBJECTIVE: The course of lung function in community members exposed to World Trade Center (WTC) dust and fumes remains undefined. We studied longitudinal spirometry among patients in the WTC Environmental Health Center (WTCEHC) treatment program. METHODS: Observational study of 946 WTCEHC patients with repeated spirometry tests analyzed on the population as a whole and stratified by smoking status, initial spirometry pattern, and WTC-related exposure category. RESULTS: Improvement in forced vital capacity (54.4 mL/yr; 95% confidence interval, 45.0 to 63.8) and forced expiratory volume in 1 second (36.8 mL/yr; 95% confidence interval, 29.3 to 44.3) was noted for the population as a whole. Heavy smokers did not improve. Spirometry changes differed depending on initial spirometry pattern and exposure category. CONCLUSION: These data demonstrate spirometry improvement in select populations suggesting reversibility in airway injury and reinforcing the importance of continued treatment.

Keywords: Acute Lung Injury, adult, adverse effects, chemically induced, drug therapy, dust, epidemiology, Female, Humans, Longitudinal Studies, male, methods, Middle Aged, Occupational Diseases, occupational exposure, physiopathology, Residence Characteristics, September 11 Terrorist Attacks, Smoking, spirometry, statistics & numerical data

Principal Investigator: Kenneth Berger, MD
NYU School of Medicine
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212-263-6407
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- Improvements in diagnosis and treatment;
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- Risk factors for disease; and
- Other research studies on WTC-related health conditions or emerging conditions.

See more about our Research Agenda.
Principle Investigators

Search Principle Investigators

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Adam Gonzalez, PhD

Adriana Feder, MD
Adriana Feder, MD

Research Projects

- Gene Expression Profiles as Markers of PTSD Risk and Resilience in WTC Responders
- Biomarkers of Psychological Risk and Resilience in World Trade Center Responders
- Trajectories of Psychological Risk and Resilience in World Trade Center Responders

Contact

Icahn School of Medicine at Mount Sinai
adriana.feder@mssm.edu
212-659-9145
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What About Metrics?

The tool:
While it may seem like an incalculable thing, in real terms altmetrics are analytical tools designed to measure the social reaction to our outreach via traditional and digital social outreach. It’s a strategy to measure reach, engagement and influence.
Evaluation of Distal Airway Injury Following Exposure to World Trade Center Dust

Project Number: 2010-2011-39413  
Institution: NYU School of Medicine  
Fiscal Year Awarded: 2011  
Project Duration: 3 years

Description
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What is the donut? What does it indicate?

<table>
<thead>
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More info at: [www.altmetric.com](http://www.altmetric.com) - About altmetrics – The donut and score
What’s with the donuts? Colors as indicators...

<table>
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<th>Topic</th>
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<td>Motor vehicle fatalities among oil and gas extraction workers.</td>
<td>Article in <em>Accident Analysis &amp; Prevention</em>, December 2012</td>
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<td>Interventions to prevent injuries in construction workers.</td>
<td>Article in <em>Cochrane database of systematic reviews</em>, January 2012</td>
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<td>Agricultural tractor overturn deaths: Assessment of trends and risk factors</td>
<td>Article in <em>American Journal of Industrial Medicine</em>, November 2009</td>
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<td>Nonfatal construction industry-related injuries treated in hospital emergency...</td>
<td>Article in <em>American Journal of Industrial Medicine</em>, January 2010</td>
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<td>Obesity and other risk factors: The National Survey of U.S. Long-Haul Truck...</td>
<td>Article in <em>American Journal of Industrial Medicine</em>, January 2014</td>
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<td>Compliance to two city convenience store ordinance requirements</td>
<td>Article in <em>Injury Prevention</em>, September 2015</td>
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<td>Incidence and risk factors of workplace violence on psychiatric staff.</td>
<td>Article in <em>Work</em>, May 2014</td>
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<td>Cities with camera-equipped taxicabs experience reduced taxicab driver...</td>
<td>Article in <em>Crim Science</em>, May 2014</td>
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<td>Non-fatal contact injuries among workers in the construction industry treated...</td>
<td>Article in <em>Journal of Safety Research</em>, June 2010</td>
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<td>Nonfatal tool- or equipment-related injuries treated in US emergency...</td>
<td>Article in <em>American Journal of Industrial Medicine</em>, June 2010</td>
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Research Paywall

Problem: Too much science is locked behind paywalls
Copyright Provisions

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Questions for the STAC

http://wwwn.cdc.gov/ResearchGateway

What’s Missing?
What’s Confusing?
Content Gaps?
What’s Working?
Thank You…

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