

# Finding Signals in the Noise: Using Wikipedia to Drive Innovation, Dissemination, and Engagement

Board of Scientific Counselors May 12, 2015, Washington, D.C. Max R. Lum Ed.D. MPA e-Communication and Research Translation Office of the Director, NIOSH





Government Influencers Workers

Researchers ---- Message

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Unions

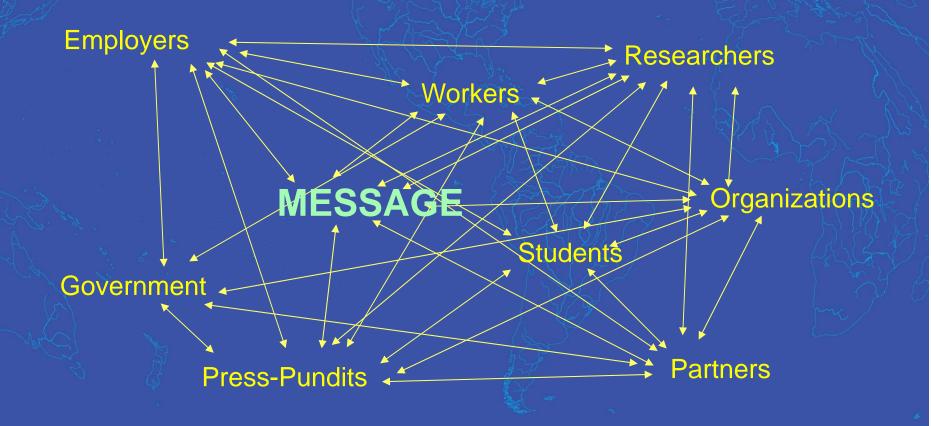
Partners

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# **Current Communication Pattern**





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Do you mean OSHA?

Google Search

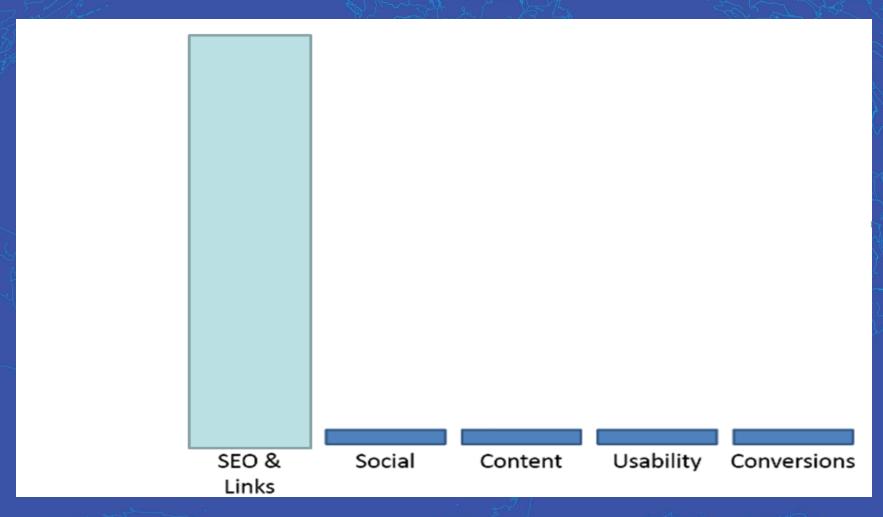
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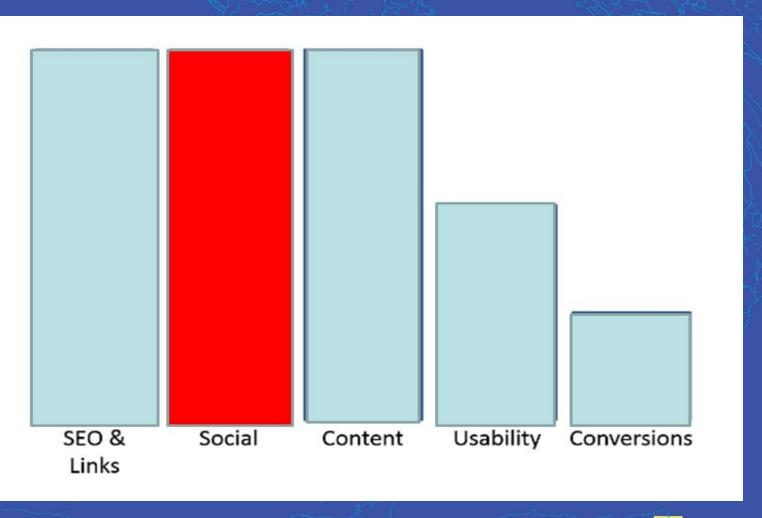
	The second second			A. Comment	THE SEARCH SE	1
Google	NIOSH					
<b>3</b>	Web Images	Maps	Shopping	More →	Search tools	
Homepage	About 2,610,000 results (0.30 seconds)  The National Institute for Occupational Safety and Health (NIOSH) www.cdc.gov/NIOSH/  As part of the CDC, NIOSH is responsible for conducting research and making recommendations for the prevention of work-related illnesses and injuries.  Fire Fighter Fatality Investigation FIRE FIGHTER FATALITY INVESTIGATION AND  NIOSH Numbered Publications NIOSH Numbered Publications Search NIOSH Numbered					
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	https://www.osha.gov/dcsp/compliance_assistance/hhe_program.html ▼ OSHA Compliance Assistance > NIOSH Health Hazard Evaluation Program.					

# How to Get Traffic to the NIOSH Web 1999





# How to Get Traffic to the NIOSH Web 2015





# Referring Domains to the NIOSH Web Site

# January 2014

Referring Domains	Jan-14
google.com	220882
bing.com	36140
wikipedia.org	15865
yahoo.com	11393
clicksafety.com	7021
	google.com bing.com wikipedia.org yahoo.com

# January 2013

Rank	Referring Domains	Jan-13
1	google.com	167490
2	bing.com	26700
3	osha.gov	24138
4	yahoo.com	15523
5	wikipedia.org	14934



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#### What is Total Worker Health?

Keeping Workers Safe is Fundamental to Total Worker ...

#### Conferences and Trainings

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#### CDC - NIOSH Program Portfolio: Total Worker Health ...

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#### 1st International Symposium to Advance TOTAL WORKER ...

www.eagleson.org/conferences/total-worker-health -

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#### Total Worker Health - (Wikipedia,) the free encyclopedia

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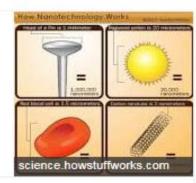
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en.wikipedia.org/wiki/Nanotechnology - Wikipedia -

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Applications - Supramolecular chemistry - Impact of nanotechnology - Nanomaterials

## What is Nanotechnology? | Nano

www.nano.gov/...101/.../definiti... ▼ U.S. National Nanotechnology Initiative ▼ Nanotechnology is science, engineering, and technology conducted at the nanoscale, which is about 1 to 100 nanometers.

Size of the Nanoscale - What's So Special about the ... - Nanotechnology Timeline



# Our Key Driver



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# Site Reach: a Comparison

- NIOSH website
  - 150,000 web pages
  - 8 million visits per year
- Wikipedia
  - 3.4 million articles
  - 8 million views...per hour







# **NIOSH Response**

# NIOSH Wikipedia in Residence

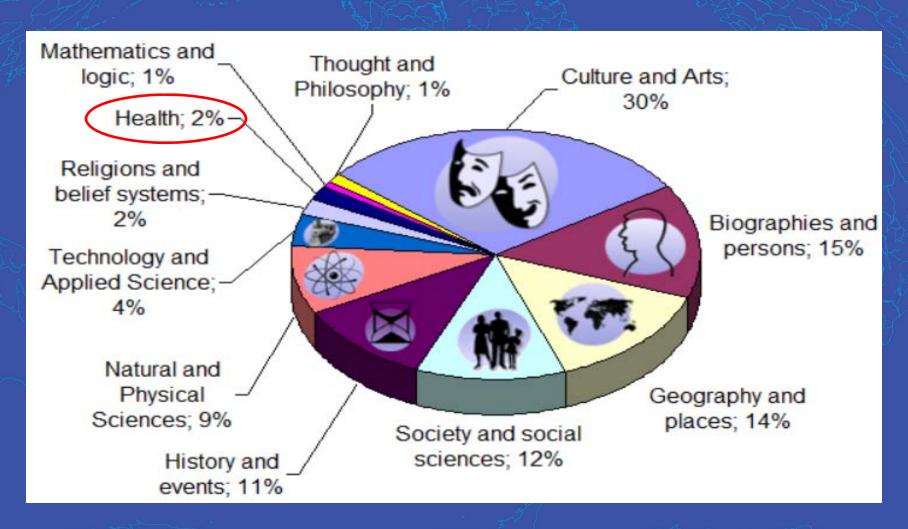


## **Activities**

- Improving and increasing our edits to Wikipedia
- Working with the chemistry and medical Wikipedia Groups
- Building a coalition with other federal agencies
- Meeting with WikiMedia Foundation
- Networking with other
   Wikipedia science editors @
   "Wikimania"



# Working with the Foundation





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## Acetic acid

From Wikipedia, the free encyclopedia

"Acetic" redirects here. It is not to be confused with Ascetic.

Acetic acid /e'si:tik/, systematically named ethanoic acid / εθe'noυik/, is an organic compound with the chemical formula CH<sub>3</sub>COOH (also written as CH<sub>3</sub>CO<sub>2</sub>H or C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>). It is a colourless liquid that when undiluted is also called *glacial acetic acid*. Vinegar is roughly 3 %-9 % acetic acid by volume, making acetic acid the main component of vinegar apart from water. Acetic acid has a distinctive sour taste and pungent smell. Besides its production as household vinegar, it is mainly produced as a precursor to polyvinylacetate and cellulose acetate. Although it is classified as a weak acid, concentrated acetic acid is corrosive and can attack the skin.

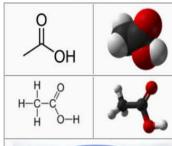
Acetic acid is the second simplest carboxylic acid (after formic acid) and is an important chemical reagent and industrial chemical, mainly used in the production of cellulose acetate for photographic film and polyvinyl acetate for wood glue, as well as synthetic fibers and fabrics. In households, diluted acetic acid is often used in descaling agents. In the food industry, acetic acid is used under the food additive code E260 as an acidity regulator and as a condiment. As a food additive it is approved for usage in many countries, including Canada, [7] the European Union, [8] the United States, [9] and Australia and New Zealand. [10]

The global demand of acetic acid is around 6.5 million tonnes per year (Mt/a), of which approximately 1.5 Mt/a is met by recycling; the remainder is manufactured from petrochemical feedstock. [111] As a chemical reagent, biological sources of acetic acid are of interest, but generally uncompetitive. Vinegar is dilute acetic acid, often produced by fermentation and subsequent oxidation of ethanol.

#### Contents [hide]

- 1 Nomenclature
- 2 History
  - 2.1 In the interstellar medium
- 3 Chemical properties

#### Acetic acid







long appeared to be attractive precursors to acetic acid. Henri Dreyfus at British Celanese developed a methanol carbonylation pilot plant as early as 1925. [20] However, a lack of practical materials that

could contain the corrosive reaction mixture at the high pressures needed (200 atm or more) discouraged commercialization of these routes. The first commercial methanol carbonylation process, which used a cobalt catalyst, was developed by German chemical company BASF in 1963. In 1968, a rhodium-based catalyst (*cis*–[Rh(CO)<sub>2</sub>l<sub>2</sub>]<sup>-</sup>) was discovered that could operate efficiently at lower pressure with almost no by-products. US chemical company Monsanto Company built the first plant using this catalyst in 1970, and rhodium-catalyzed methanol carbonylation became the dominant method of acetic acid production (see Monsanto process). In the late 1990s, the chemicals company BP Chemicals commercialized the Cativa catalyst ([Ir(CO)<sub>2</sub>l<sub>2</sub>]<sup>-</sup>), which is promoted by iridium<sup>[21]</sup> for greater efficiency. This iridium-catalyzed Cativa process is greener and more efficient<sup>[22]</sup> and has largely supplanted the Monsanto process, often in the same production plants.

### In the interstellar medium [edit]

Acetic acid was discovered in the interstellar medium in 1996 by a team led by David Mehringer<sup>[23]</sup> who detected it using the former Berkeley-Illinois-Maryland Association array at the Hat Creek Radio Observatory and the former Millimeter Array located at the Owens Valley Radio Observatory. It was first detected in the Sagittarius B2 North molecular cloud (also known as the Sgr B2 Large Molecule Heimat source). Acetic acid has the distinction of being the first molecule discovered in the interstellar medium using solely radio interferometers; in all previous ISM molecular discoveries made in the millimeter and centimeter wavelength regimes, single dish radio telescopes were at least partly responsible for the detections. <sup>[23]</sup>

## Chemical properties [edit]

### Acidity [edit]

The hydrogen center in the carboxyl group (-COOH) in carboxylic acids such as acetic acid can separate from the molecule by ionization:

$$CH_3CO_2H \rightarrow CH_3CO_2^- + H^+$$

Because of this release of the proton ( $H^+$ ), acetic acid has acidic character. Acetic acid is a weak monoprotic acid. In aqueous solution, it has a pK<sub>a</sub> value of 4.76. [24] Its conjugate base is acetate (CH<sub>3</sub>COO<sup>-</sup>). A 1.0 M solution (about the concentration of domestic vinegar) has a pH of 2.4, indicating that merely 0.4% of the acetic acid molecules are dissociated. [25]

$$+$$
  $H_2O$   $0 - \frac{\%}{2}$   $+$   $H_3O^+$ 

i	GHS pictograms					
	GHS signal word	Danger				
)	GHS hazard statements	H226, H314				
	GHS precautionary statements	P280, P305+351+338, P310				
	EU Index	607-002-00-6				
	EU classification	c c				
	R-phrases	R10, R35				
	S-phrases	(S1/2), S23, S26, S45				
	NFPA 704	320				
	Flash point	40 °C (104 °F; 313 K)				
- 1	Autoignition temperature	427 °C (801 °F; 700 K)				
	Explosive limits	4-16%				
- 1	LD <sub>50</sub> (Median lethal dose)	3.31 g kg <sup>-1</sup> , oral (rat)				
-	US health exposure limits (NIOSH):					
>	PEL (Permissible)	TWA 10 ppm (25 mg/m <sup>3</sup> ) <sup>[6]</sup>				
ā	REL (Recommended)	TWA 10 ppm (25 mg/m³) ST 15 ppm (37 mg/m³) <sup>[6]</sup>				
	IDLH (Immediate danger)	50 ppm <sup>[6]</sup>				
	Related compounds					
	Related carboxylic acids	Formic acid Propionic acid				
	Related compounds					
		Acetamide				
		Acetic anhydride				
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## Flock worker's lung

From Wikipedia, the free encyclopedia

Flock worker's lung is an occupational lung disease caused by exposure to flock, small fibers that are glued to a backing in order to create a specific texture. People who work in flocking are at risk of inhaling the small fibers, which causes interstitial lung disease. [1] The disease was initially described in 1998, when a group of workers at a flocking plant developed interstitial lung disease of unknown etiology.

#### Contents [hide]

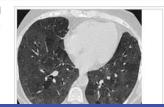
- 1 Signs and symptoms
- 2 Diagnosis
- 3 Causes and pathogenesis
- 4 Prevention
- 5 Treatment and prognosis
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# Flocked fabric

## Signs and symptoms [edit]

Signs and symptoms of flock worker's lung include rales (crackling noises caused by fluid in the lungs), dyspnea (shortness of breath), and coughing. Abnormalities seen on a CT scan of the lungs can include ground glass opacity and reticular opacity. The typical histopathology in flock worker's lung is bronchiolocentric interstitial pneumonitis and lymphocytic bronchiolitis with lymphocytic hyperplasia. Occasionally, desquamative interstitial pneumonia and bronchiolitis obliterans organizing pneumonia can be seen. [3][4]

Other symptoms described in flock workers include pleuritic chest pain and atypical chest pain. Most cases described have been chronic ps://en.wikipedia.org/wiki/Main Page progressive. Lung function in individuals with flock worker's lung is generally diminished, with both restrictive and obstructive defects





## Diagnosis [edit]

A CT scan of the lungs and histopathology along with a history of working in the flocking industry can diagnose flock worker's lung. A differential diagnosis may also include Sjögren's syndrome and lymphoid interstitial pneumonia. Flock worker's lung may be misdiagnosed as asthma or recurrent pneumonia. Though X-rays may be abnormal, CT scans are more useful as a diagnostic tool in flock worker's lung. Other diagnostic methods may include a transbronchial biopsy or wedge biopsy.

Ground-glass opacity seen on CT caused by hypersensitivity pneumonitis, not flock worker's lung. This type of abnormality is commonly seen in flock worker's lung.

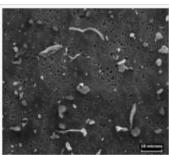
## Causes and pathogenesis [edit]

Flock worker's lung is caused by exposure to small pieces of flock, usually nylon, created during the flocking process and inhaled. [3][1] Exposure to rotary-cut flock particulates is the main risk factor; whether or not other types of flock cause this pulmonary fibrosis is not yet determined. [5] Other types of flock include rayon, polypropylene, and polyethylene. [1] Workers exposed to nylon, polypropylene, polyethylene, and rayon flocking debris have developed flock worker's lung. [4][8] Exposure to higher concentrations of respirable flock particles is associated with more severe disease. [9]

Whether or not smoking affects the progression or incidence of flock worker's lung is a topic of ongoing research as of 2015.<sup>[4]</sup> Research in rats has shown that nylon flocking is a causative agent.<sup>[6]</sup>

## Prevention [edit]

Flock worker's lung can be prevented with engineering controls that protect workers from inhaling flock.<sup>[1]</sup> Engineering controls to prevent inhalation of flock can include using guillotine cutters rather than rotary cutters, and ensuring that blades are sharp, since dull blades shear off more respirable particles. Flocking plants have also implemented medical surveillance programs for workers to diagnose cases at an earlier stage.<sup>[6]</sup> Another technique for preventing flock worker's lung is cleaning the workplace with alternatives to compressed air in order to avoid resuspending particulates in the air.<sup>[1]</sup>



Scanning electron microscope image of airborne respirable dust sample collected in test chamber after agitating a bulk flock sample from a card manufacturing plant

## Treatment and prognosis [edit]

Flock worker's lung is generally treated by removing the individual from the environment where they are inhaling flock. Symptoms generally improve within days to weeks after stopping exposure. [1][5] The benefits of glucocorticoid therapy are unclear. [5][4]

Flock worker's lung may raise the risk for lung cancer, but the connection is a topic of research as of 2015. <sup>[5][4]</sup> The disease can be subacute or develop over long periods of exposure. <sup>[6]</sup>



## History [edit]

Interstitial lung disease in flock workers was first connected to flock fibers in 1991, though the disease now known as "flock worker's lung" was not formally described until 1998, when researchers from NIOSH published the results of an epidemiological investigation of outbreaks in Ontario and Rhode Island. [4][10][7] Previously, interstitial lung disease in flock workers was incorrectly attributed to mycotoxins present in contaminated adhesive. [10] As of June 1999, 24 flock workers had been diagnosed. [7]

## Epidemiology [edit]

Cases have been reported in the United States, Canada, Turkey, and Spain. [9]

## References [edit]

- 1. ^ a b o d e f "Respiratory Diseases: Occupational Risks" & National Institute for Occupational Safety and Health. 21 December 2012. Retrieved 23 March 2015.
- 2. ^ Kern DG, Crausman RS, Durand KT, Nayer A, Kuhn C (1998). "Flock worker's lung: chronic interstitial lung disease in the nylon flocking industry". *Annals of Internal Medicine* **129** (4): 261 –72. doi:10.7326/0003-4819-129-4-199808150-00001 @. PMID 9729178 @.
- 3. ^ a b o Hasleton, Philip; Flieder, Douglas B., eds. (2013). Spencer's Pathology of the Lung (6th ed.). Cambridge University Press. ISBN 9781139618977.
- 4. ^abodef Scott E. Turcotte, MSc; Alex Chee, MD; Ronald Walsh, MD; F. Curry Grant, MD; Gary M. Liss, MD; Alexander Boag, MD; Lutz Forkert, MD; Peter W. Munt, MD; M. Diane Lougheed, MD (June 2013). "Flock Worker's Lung Disease: Natural History of Cases and Exposed Workers in Kingston, Ontario". Chest 143 (6): 1642–1648. doi:10.1378/chest.12-0920 .
- 5. ^ a b c d e f Kern, David J.; Crausman, Robert S. (19 July 2013). "Flock worker's lung". UpToDate.
- 6. ^abod Sauler, Maor; Gulati, Mridu (2012-12). "Newly Recognized Occupational and Environmental Causes of Chronic Terminal Airways and Parenchymal Lung Disease" . Clinics in chest medicine 33 (4): 667–680. doi:10.1016/j.ccm.2012.09.002 . ISSN 0272-5231 . PMC 3515663 . PMID 23153608 . Retrieved 2015-03-31. Check date values in: |date= (help)
- 7. ^abod Eschenbacher, W. L.; Kreiss, K.; Lougheed, M. D.; Pransky, G. S.; Day, B.; Castellan, R. M. (Jun 1999). "Nylon flock-associated interstitial lung disease" . American Journal of Respiratory and Critical Care Medicine 159 (6): 2003–2008. doi:10.1164/ajrccm.159.6.9808002 . ISSN 1073-449X . PMID 10351952 . Retrieved 2015-03-31.
- 8. \*Vinicius C.S. Antao MD, MSc, PhD\*, Chris A. Piacitelli CIH, William E. Miller MS, Germania A. Pinheiro MD, MSc, PhD and Kathleen Kreiss MD (April 2007). "Rayon Flock: A New Cause of Respiratory Morbidity in a Card Processing Plant". American Journal of Industrial Medicine. doi:10.1002/ajim.20440 ......
- 9. ^ a b Antao, VC; Pinheiro, GA; Parker, JE (2007). William N. Rom, Steven B. Markowitz, ed. Lung diseases associated with silicates and other dusts. Environmental and Occupational Medicine (Lippincott Williams & Wilkins). pp. 525–542. ISBN 9780781762991.
- 10. A a b Kreiss, Kathleen (June 2013). "Occupational Lung Disease: From Case Reports to Prevention". Chest. doi:10.1378/chest.12-3001 🗗

## External links [edit]

- NIOSH Health Hazard Evaluation Report Claremont Flock Corporation
- NIOSH Health Hazard Evaluation Report Hallmark Cards, Inc.



# **Global Platform**





# Wikidata: A Global Platform



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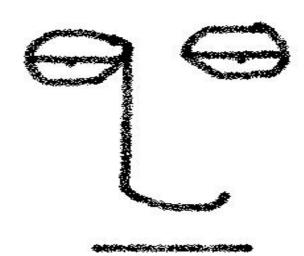






# Formatting our Research for the Public Space

I was really good at all this before they changed the rules.





## World Trade Center Health Program. Learn More.



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### World Trade Center Publications

Listed below are the current citations for articles and publications pertaining to the World Trade Center. For some items, abstracts are available. Items are listed chronologically with the most recent items first. Please note that this list will be updated monthly.

10 11 12 13 14 15 16 17 18

## Refractory sarcoid arthritis in world trade center-exposed new york city firefighters: a case series

Journal of clinical rheumatology: practical reports on rheumatic & musculoskeletal diseases

Authors: Loupasakis, K. Berman, J. Jaber, N. Zeig-Owens, R. Webber, M. P. Glaser, M. S. Moir, W. Qayyum, B. Weiden, M.

D. Nolan, A. Aldrich, T. K. Kelly, K. J. Prezant, D. J.Â

Pages: 19-23Â volume: 21Â Number: 1Â Edition: 2014/12/30Â

Date: Jan 2015 Â ISBN: 1076-1608 Â

Abstract [+]

Notes:

1536-7355 Loupasakis, Konstantinos Berman, Jessica Jaber, Nadia Zeig-Owens, Rachel Webber, Mayris P Glaser, Michelle S Moir, William Qayyum, Basit Weiden, Michael D Nolan, Anna Aldrich, Thomas K Kelly, Kerry J Prezant, David J Journal Article United States J Clin Rheumatol. 2015 Jan; 21



# Traditional Approach: WTC Research

The idiopathic chronic cough and cough hypersensitivity syndrome

Authors: Yu, S. Y.Â

Pages: 350-353Â volume: 39Â Number: 5Â

Date : Â 2014 Â

Abstract [+]

Cough hypersensitivity syndrome (CHS) has been proposed as a term for patients with chronic cough associated with cough reflex hypersensitivity that can't be explained by other causes. A majority of patients with idiopathic chronic cough (ICC) can be explained with CHS. Within CHS it is likely that there will be many phenotypes, including CHS associated autoimmune diseases, CHS associated vitamin B-12 deficiency, and "9.11 World Trade Center cough syndrome". The concept, clinical features and research development of CHS is described in this review. The associated knowledge of cough reflex



# **Modified Approach**

Cardiovascular disease among adult members of the World Trade Center Health Registry



Presenter: Hannah T. Jordan, MD, MPH; Deputy Medical Director 347-396-2865@
hjordan1@health.nyc.gov
Principal Investigator: Mark Farfel, ScD, Director, (not pictured) 347-396-2876@
mfarfel@health.nyc.gov

#### Research question

Were 9/11-related environmental exposures or PTSD associated with a sustained increase in the risk of CVD?

#### Abstract

Objective: To examine associations between 9/11-related exposures, posttraumatic stress disorder (PTSD), and cardiovascular disease (CVD) among persons exposed to the 9/11/2001 World Trade Center disaster.

Methods: Prospective studies of (a) incident self-reported, physician-diagnosed heart disease during 2002-2007 and (b) cardiovascular disease hospitalizations during 2002-2010 ascertained via the New York State hospital discharge reporting system among World Trade Center Health Registry enrollees aged >18 years on 9/11/2001.

Results: Both self-reported heart disease and objectively-documented cardiovascular disease hospitalizations were associated with measures of 9/11-related exposure and with 9/11-related PTSD.

Conclusion: These exploratory studies suggest that persons who experienced intense 9/11-related environmental exposures or developed 9/11-related PTSD may be at an increased risk of cardiovascular disease.

Key words: cardiovascular disease, heart disease, PTSD, World Trade Center

#### Impact

Findings from the World Trade Center Health Registry suggest that 9/11-related PTSD and intense rescue/recovery-related exposures may have increased the risk of hospitalization for heart disease and stroke, consistent with earlier findings based on self-reported illnesses. This suggests that medical follow-up of persons who developed 9/11-related PTSD or performed intensive rescue/recovery work in response to the disaster should include screening for modifiable cardiovascular disease risk factors, such as smoking and high blood pressure. These findings also emphasize the importance of providing integrated mental and physical health care for individuals who were exposed to the disaster.

#### Additional Resources or References

http://jaha.ahajournals.org/content/2/5/e000431.long

http://www.sciencedirect.com/science/article/pii/S0091743511004336

View

## Research Gateway



For How Long is WTC Exposure Associated with Incident Airway Obstruction?

## ABSTRACT [+]

Respiratory disorders are associated with occupational/environmental exposures. The latency period between exposure and disease onset remains uncertain. The World Trade Center (WTC) disaster presents a unique opportunity to describe the latency period for obstructive airway disease (OAD) diagnoses. This prospective cohort study of New York City firefighters compared the timing and incidence of physician-diagnosed OAD relative to WTC-exposure. Exposure was categorized by WTC arrival time: high (9/11/2001 AM); moderate (9/11/2001 PM or 9/12/2001); or low (9/13/-24/2001).

**Key Words:** Change point model, Latency, Obstructive airway disease, Rescue/recovery workers

### **Research questions**

For how long is WTC exposure associated with incident obstructive airway disease? What is the magnitude of the exposure-response relationship between WTC exposure and incident obstructive airway disease?

Is the relationship between WTC exposure and incident obstructive airway disease limited to a single subtype of obstructive airway disease?

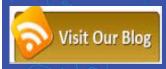
#### Impact

Conventional wisdom has been that new incident obstructive airway disease (OAD) that is associated with environmental or occupational exposure would present weeks to months, not years, after exposure. This research in the FDNY firefighter cohort found that physician diagnosis of incident OAD is associated with World Trade Center (WTC) exposure for at least five years after the exposure

Principal Investigator: Charles Hall, PhD

Other key personnel: David <u>Prezant,</u> MD, <u>Mayris</u> Webber, <u>DrPH.</u> Albert Einstein College of Medicine, 1300 Morris Park Ave., Bronx NY 10461 917-803-5470

charles.hall@einstein.yu.edu www.einstein.vu.edu









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# Questions????

- How best to stimulate collaboration to increase the quality and utility of Wikipedia?
- Would you personally be interested in learning more about Wikipedia for yourself and/or your institution?
- What strategies do you think would provide more interactive social exposure to NIOSH research in the commons?

