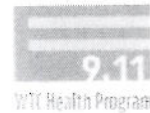
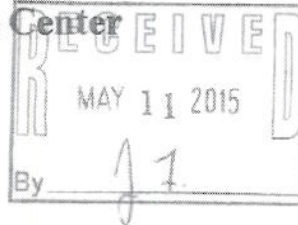


Petition for the Addition of a New WTC-Related Health Condition for Coverage under the World Trade Center (WTC) Health Program



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

General Instructions

Any interested party may petition the WTC Program Administrator to add a condition to the List of WTC-Related Health Conditions (List) in 42 C.F.R. Part 88 (see <http://www.cdc.gov/wtc/faq.html#hlthcond> for the complete list).

Please use this form to petition the Administrator to add a health condition (any recognized medical condition requiring treatment or medication) to the List. Please use a separate form for each health condition.

Use of this petition *form* is voluntary, but any petition must include all of the information identified below, as required by 42 C.F.R. Part 88. Petitions that do not provide the required information will not be considered by the WTC Program Administrator. Additional supporting materials may be submitted and are encouraged.

Please note, however, the petition and all supporting materials submitted to the WTC Health Program are part of the public record and may be subject to public disclosure. Personal information will be redacted prior to public disclosure.

Please TYPE or PRINT all information clearly on the form.

If you need more space to provide the required information, please attach additional pages to this form.

Mail or email this form to: World Trade Center Health Program
395 E. Street, S.W., Suite 9200
Washington, D.C. 20201
WTC@cdc.gov

Public reporting burden of this collection of information is estimated to average 40 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to CDC/ATSDR Information Collection Review Office, 1600 Clifton Road NE, MS D-74, Atlanta, Georgia 30333; ATTN: PRA (0920-0929).

A. Interested Party Information

A1. Do you represent an organization (are you submitting this petition on behalf of an organization)?
 Yes (Go to A2) No (Go to A3)

A2. Organization Information:

Name of organization

A3. Name of Individual Petitioner or Organization Representative:

First name

Last name

Position, if representative of organization

A4. Mailing Address:

Street

City

State

Zip code

A5. Telephone Number:

A6. Email Address: _____

B. Proposed WTC-Related Health Condition Information

B1. Health Condition Information:

AUTO Immune Disease - ENCEPHALITIS OF THE BRAIN
Name of health condition you wish to petition to add to the List of covered conditions

If the name of the condition is not known, please provide a description of the condition or the name of the diagnosis provided by a physician or other healthcare provider.

AUTO - Immune Disease - ENCEPHALITIS OF THE BRAIN

C. Basis for Proposing that the Condition Be Added to the List of WTC-Related Health Conditions

C1. Describe the reasons the WTC Program Administrator should consider the addition of this health condition. Explain how the health condition you are proposing relates to the exposures that may have occurred from the September 11, 2001, terrorist attacks. Your explanation must include a medical basis for the relationship/association between the 9/11 exposure and the proposed health condition. The medical basis may be demonstrated by reference to a peer-reviewed, published, epidemiologic study about the health condition among 9/11 exposed populations or to clinical case reports of health conditions in WTC responders or survivors. First-hand accounts or anecdotal evidence may not be sufficient to establish medical basis. If you need more space, please attach additional pages to this form.

Please see attached as my unit is shabby

Basis for Proposing that the Condition be Added to the List of WTC-Related Health Issues:

Re: (Auto Immune Disease, Encephalitis of the Brain)

I was a responder to the 911 WTC attack. At the time I was a American Red Cross employee in

I was dispatched from and arrived at World Trade Center on September 2001. I checked in and worked for a little over . I was provided a Green pass, but generally stayed within the immediate area of the attack. For the first few days, we did not have masks, and when we got them we gave them to the men who were digging on the mound. Altho they were not the best, within a week we finally got masks that were a little better, which we used and also passed out to the people digging. For a while I stayed at the mound and helped talk with first responders as they came off to rest, held them when they cried, got them water and listened to them. I also had fliers translated into many languages where ARC assistance stations and walked the area handing out and posting fliers so people could find assistance. I worked 12 to 16 hours a day some days in the immediate area and close by. For a couple of days,

We found people who had not been evacuated and needed assistance.

I also worked doing , which were outside, for those who lived in the area and had lost their home or job. I did many other things i.e.,

I went back to the hotel every night with black dust covering my eyes, ears, face, nose, mouth.

By the time I returned home, I had a bad cough, and was told it was the WTC cough. Later I was diagnosed with , and the most serious is a relatively rare auto-immune disease – Encephalitis of the Brain. I was sent to a neurologist to figure it out. I had to go through a spinal tap to ensure that was the diagnosis.

. It's not the most common autoimmune disease and it is probable that the toxins and dust may have caused it. I am enrolled in the WTC Health Program for a yearly physical, which is all that is provided.

I respectfully request that auto-immune diseases be added to the medical list. I know

there are many others with auto-immune diseases. Mine has been diagnosed through a spinal tap and my neurologist. I am typing this as I am shaky and my handwriting is illegible most of the time.

I hope you will add this to the list as there seem to be many responders wwith auto immune diseases. Thank you for your consideration.

5-9-15

D. Signature of Petitioner

Sign your name below to indicate that you are petitioning the WTC Program Administrator to consider adding a health condition to the list of WTC-related health conditions identified in 42 C.F.R. Part 88.

Signature

5-9-15

Date

Privacy Act Statement

In accordance with the Privacy Act of 1974, as amended (5 U.S.C. § 552a), you are hereby notified of the following:

Title I of the James Zadroga 9/11 Health and Compensation Act of 2010 amended the Public Health Service Act (PHS Act) to establish the World Trade Center (WTC) Health Program. Sections 3311, 3312, and 3321 of Title XXXIII of the PHS Act require that the WTC Program Administrator develop regulations to implement portions of the WTC Health Program established within the Department of Health and Human Services (HHS). The WTC Health Program is administered by the Director of the National Institute for Occupational Safety and Health (NIOSH), within the Centers for Disease Control and Prevention (CDC). The information provided with this form and supporting documentation will be used by the WTC Program Administrator to consider the disposition of a petitioned-for health condition. Disclosure of this information is voluntary.

Records containing information in identifiable form become part of an existing NIOSH system of records under the Privacy Act, 09-20-0147, "Occupational Health Epidemiological Studies and EEOICPA Program Records and WTC Health Program Records, HHS/CDC/NIOSH." These records are treated in a confidential manner, unless otherwise compelled by law.

Information submitted to WTC Health Program which may be considered "protected health information" pursuant to the Health Insurance Portability and Accountability Act of 1996 (HIPAA) (Pub. L. 104-191; 42 U.S.C. § 1320d) and the HIPAA Privacy, Security, Breach Notification, and Enforcement Rules (45 C.F.R. pts. 160, 162, and 164) will be maintained in accordance with all applicable laws.

NIOSH may disclose information in identifiable form only insofar as such disclosure is permitted pursuant to the HIPAA Privacy Rule; this may include disclosure to the WTC Health Program Scientific/Technical Advisory Committee (STAC), which may be asked to consider the petition and issue a recommendation to the WTC Program Administrator. Information in identifiable form will be redacted from submitted petition forms and supporting documentation that become a part of the public record (e.g. in conjunction with STAC consideration or a rulemaking).

9/11 firefighters hit by autoimmune diseases

- 25 March 2015 by [Clare Wilson](#)
- Magazine issue [3014](#). [Subscribe and save](#)

THE attack on the World Trade Center changed the world 13 years ago. We're now beginning to understand the long-lasting impact it had on the health of emergency workers who cleared up the site.

Nearly 16,000 firefighters and other emergency crew worked on the site over a period of 10 months after the attack. As well as higher rates of cancer and respiratory problems, it now seems these people are more likely to suffer from autoimmune diseases, such as rheumatoid arthritis and lupus.

When the twin towers fell in 2001, they created an enormous amount of airborne dust that included pulverised cement, glass, silica, asbestos, lead and dioxins. Fires continued to burn for three months afterwards.

"Unlike ordinary building sites, there were unprecedented amounts of aerosolised dust and fumes," says [Mayris Webber](#) of the Albert Einstein College of Medicine in New York. Face masks and respirators were available, but there was not always enough to go round, and some people didn't like using them for long periods, says Webber. "They were not consistently worn."

The health problems soon began. More than 70 per cent of firefighters developed a breathing problem in the first year, from coughing to asthma. Since then, they have also been diagnosed with higher than average rates of certain cancers.

Some of the chemicals in the World Trade Center dust have been linked with autoimmune diseases, so Webber's team decided to look for evidence in the workers' health records, kept as part of the fire department's monitoring programme.

Although the number was small – only 216 self-reported cases – Webber points out that you would normally expect very low rates of autoimmune disease in this group of particularly fit and healthy people. So instead of comparing the firefighters with average New Yorkers, they analysed 59 medically confirmed cases alongside firefighters in the monitoring programme who had not developed any autoimmune disorders.

They found that those affected were likely to have worked on the site for longer. The rate of cases was three times higher in those who worked for the full 10 months than in who stayed only one month. On average it took five years to develop the disease.

The workers were exposed to such a complex mix of chemicals it may not be possible to identify the culprits. However, we know that breathing compounds such as asbestos and silica into the lungs seems to make the immune system more reactive, says [Jean Pfau](#) of Idaho State University.

Publicising the effects of these chemicals on workers at the world's most famous demolition site could help those in the construction industry. They often come in contact with materials like silica so should be more aware of the dangers and the need for protective gear. "This is a powerful paper describing the phenomenon," says Pfau.

By Amy Norton HealthDay March 19, 2015, 3:55 PM New health worry for 9/11 recovery workers



Firefighters search through the rubble of the World Trade Center in lower Manhattan following the attacks of Sept. 11, 2001. DOUG KANTER/AFP/Getty Images

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Recovery workers who toiled at the World Trade Center disaster site may face a heightened risk of rheumatoid arthritis and similar autoimmune diseases, a new study suggests.

The findings, reported online March 16 in the journal *Arthritis & Rheumatology*, add to the [list of potential health effects](#) seen among responders to the Sept. 11, 2001, attacks in New York City.

Past studies have found increased rates of respiratory diseases, such as asthma and chronic bronchitis, as well as [some forms of cancer](#). The new study is the first to find an increased risk of certain autoimmune disorders, the researchers say.

Autoimmune diseases arise when the immune system launches an abnormal attack on the body's own tissue. The conditions seen in this study -- which also included lupus and systemic sclerosis -- affect joints, muscles and connective tissue throughout the body.

The diseases were not common. In the 12 years following 9/11, the researchers found 59 new cases of autoimmune conditions among more than 13,600 firefighters and other recovery workers who were potentially at risk.

But their odds of getting such a diagnosis rose 13 percent for each month they spent at the Twin Towers site, the findings showed. And workers who spent 10 months there had a threefold higher risk than those who were on-site for one month.

Ground Zero health crisis

It's known that Ground Zero workers were exposed to toxins in the dust and debris left behind by the towers' collapse, including lead, asbestos, glass fibers and silica.

It's not clear which particular toxins might account for the higher risk of autoimmune diseases, said Mayris Webber, the lead researcher on the study and a professor at Montefiore Medical Center/Albert Einstein College of Medicine in New York City.

According to Webber, it's likely that some workers had a genetic predisposition to autoimmune disease, and exposure to one or more toxins at Ground Zero helped trigger the abnormal immune reaction. That's in keeping with the general theory on how autoimmune diseases arise.

Webber said the bottom line for former 9/11 workers is to see a doctor if they develop possible symptoms of the diseases found in this study.

The same advice goes for people who lived near Ground Zero in the months after the attacks, she said.

The most common diagnosis was rheumatoid arthritis, which affected 37 percent of workers with autoimmune diseases. People with rheumatoid arthritis typically have periodic symptom flare-ups, including fatigue and warm, swollen, stiff joints on both sides of the body.

The second most common diagnosis was psoriatic arthritis, which is associated with the skin condition psoriasis. It causes joint stiffness, fatigue, back pain and tender spots where ligaments or muscles attach to bone, especially in the heel or sole of the foot, according to the Arthritis Foundation.

Dr. Michael Crane directs the World Trade Center Health Program at Mount Sinai Medical Center in New York City, which offers free health monitoring and treatment to eligible Ground Zero workers and volunteers.

He said the center has seen cases of autoimmune disease "here and there." The new study, he noted, sheds light on the bigger picture: While the conditions are uncommon, recovery workers with the most intense exposure are at relatively greater risk.

"This is a very important study," Crane said. "These are rare diseases, and without this ongoing monitoring (of recovery workers), these cases would've been lost in the crowd." He agreed that 9/11 responders and residents near the disaster site should get potential symptoms checked out.

"That doesn't mean you should be alarmed any time you have knee pain," Crane said. But because rheumatoid arthritis and similar conditions are so debilitating, it's vital to diagnose them early. In the wider context, Crane said, the findings underscore the importance of continuing to monitor recovery workers' health, since some medical conditions take years to surface.

March 21, 2015

Autoimmune diseases rising in 9/11 worker

The list of ailments afflicting the World Trade Center first responders has grown to include systemic autoimmune diseases...

The conditional odds ratio for autoimmune diseases rose by 13% for each month individuals spent working at the site...according to Mayris P. Webber, DPH, Montefiore Medical Center in New York City, and colleagues.

And for those who spent 10 months working at the site the risk tripled the researchers reported... “The terrorist attacks on the World Trade Center buildings and the subsequent building collapses and fires exposed rescue/recovery workers to aerosolized WTC dust, an amalgam of pulverized cement, glass fibers, silica, asbestos, lead, polycyclic aromatic hydrocarbons, polychlorinated biphenyls, and polychlorinated furans and dioxins,” they noted.

The result has been the development of various respiratory and other diseases including asthma, gastroesophageal reflux, and cancer in up to 70% of the exposed New York City fire department members, but the entire range of potential health effects is not yet known and may take decades to fully manifest.

Autoimmune diseases have been linked with multiple environmental exposures, including silica, hydrocarbons, and particulates.

These autoimmune conditions include rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), dermatomyositis, vasculitis, and Sjogren’s syndrome, and most often have been reported after many years of exposure and predominantly among women.

The finding of an increase in autoimmune disease among WTC responders was “unexpected and highlights the need for increased clinician awareness of the possibility of these and perhaps other autoimmune disorders in their WTC-exposed male patients...”

The authors concluded that workers and residents should be closely monitored for these conditions. “The stakes are high because enhanced surveillance can lead to early detection and treatment, which has been shown to improve quality of life and reduce or delay organ damage including erosive joint destruction, kidney failure, pulmonary fibrosis, and hypertension.”

And so it goes. Disease and disability caused by industrial material and chemical can surface many years later. I hope, in this case, our government, the powers that have responsibility for support in unusual circumstances will respond with more pace and thought than they did to the ailments incurred by first responders.

Autoimmune Study for Sick 9/11 First Responders

The World Trade Center (WTC) Health Program is reviewing a study to be published in a forthcoming issue of the American College of Rheumatology's Journal, Arthritis & Rheumatology, and currently available online, regarding the risk of new-onset autoimmune disease in individuals with exposures related to the September 11, 2001, terrorist attacks at the World Trade Center. The authors conclude that prolonged WTC-site work post-9/11 (more than 2 months) may be an important predictor of systemic autoimmune disease. Depending on the results of this and on-going studies, there may be evidence to add new conditions to the list of WTC-related health conditions covered for treatment within the WTC health program, as well as compensation from the Zadroga Victim Compensation Fund.

By Michael Barasch | Published March 26, 2015 | Posted in WTC Victims | Tagged autoimmune disease, autoimmune study, WTC Health Program

- See more at: <http://www.personalinjuryjustice.com/2015/03/26/autoimmune-study-for-sick-911-first-responders/#sthash.ozWiakF7.dpuf>

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By Michael Barasch | Published March 26, 2015 | Posted in 9/11 Injuries, Health Programs | Tagged autoimmune disease, autoimmune study, WTC Health Program

WTC firefighters suffer from autoimmune disease

The long tail of Epidemiology

The March 28, 2015, issue of *New Scientist* describes the results of a study by Mayris Webber of the Albert Einstein of Medicine of New York.

Some of the chemicals in the World Trade Center dust have been linked to autoimmune diseases. These autoimmune conditions include rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), dermatomyositis, vasculitis, and Sjogren's syndrome.

Professor Webber's team looked for evidence of autoimmune disease in the **FDNY-WTC Health Program**.

There were 216 self-reported cases from the 13,617 records. Webber's team looked at 59 firefighters with medically confirmed cases along side firefighters in the FDNY-WTC Health Program with no autoimmune disorders.

Time exposed = level of disease

The conditional **odds ratio** for autoimmune diseases rose by 13% for each month individuals spent working at the site. The risk tripled for those who spent 10 months working at the site.

The finding of an increase in autoimmune disease among WTC responders was "unexpected and highlights the need for increased clinician awareness of the possibility of these and perhaps other autoimmune disorders in their WTC-exposed male patients."

"To the best of our knowledge, acute and chronic WTC exposures have been associated with respiratory conditions like asthma and PTSD, but not with the new onset of systemic autoimmune diseases other than sarcoidosis."

read more:

Uniformed Firefighters Association

Source article:

Nested Case-Control Study of Selected Systemic Autoimmune Diseases in World Trade Center Rescue/Recovery Workers. *Arthritis & rheumatology* (Hoboken, N.J.)03/2015;
DOI: 10.1002/art.39059

Studies on the Health Impacts of 9/11

Updated March 2010

| | Author | Year | Peer Reviewed Journal | Findings: |
|---|---------------|------|--|--|
| 1 | Rom, W | 2002 | American Journal of Respiratory and Critical Care Medicine | 38 year old firefighter with eosinophilic pneumonia. Washings of his airways showed fly ash, degraded glass, metal, and asbestos fibers |
| 2 | Prezant, D | 2002 | New England Journal of Medicine | 90% of FDNY firefighters working at the WTC site had a cough, nasal congestion, chest tightness and chest burning; 87% had new onset GERD (gastroesophageal reflux disease). Increased bronchial reactivity was present and worsened over time in many firefighters. |
| 3 | Trout, D | 2002 | Journal of Occupational and Environmental Medicine | Federal workers working near the WTC site were far more likely to have symptoms to shortness of breath, chest tightness and eye irritation, compared to workers in Dallas. Rates of depression and PTSD symptoms were also significantly higher. |
| 4 | Galea, S | 2002 | New England Journal of Medicine | Rescue workers at the site were far more likely to have PTSD and depression than NYC residents who did not do this type of work. |
| 5 | CDC | 2002 | Morbidity and Mortality Weekly Report | 82% of the adult population surveyed in neighborhoods surrounding the WTC two months after the event had persistent respiratory symptoms that developed or worsened after the WTC attack, and 39% had symptoms suggestive of PTSD. |
| 6 | Das, D | 2003 | Journal of Urban Health | Individuals within two miles of the WTC site were significantly more likely to visit an Emergency Department for smoke inhalation, trauma, asthma or anxiety compared to those outside a two-mile radius |
| 7 | CDC | 2003 | Morbidity and Mortality Weekly Report | High school and college staff present near the WTC at the time of the collapse had increased rates of eye, nose and throat irritation, cough, and shortness of breath compared to similar workers five miles away. |
| 8 | Berkowitz, GS | 2003 | The Journal of the American Medical Association | Women pregnant and present in lower Manhattan on 9/11/01 and in the three weeks after 9/11 were more likely to have babies with intrauterine growth retardation (smaller babies at birth). |
| 9 | Fireman, EM | 2004 | Environmental Health Perspectives | Sputum (phlegm) induced in firefighters (FDNY) showed WTC dust and particles with a high pH more than eight months after the attack, as well as signs of inflammation |

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|----|-------------|------|--|---|
| 10 | Salzman, SH | 2004 | Journal of Occupational and Environmental Medicine | 78% of police officers at the WTC site developed respiratory symptoms, and 29% of participants had abnormal breathing tests. The study was conducted in December 2001. |
| 11 | Skloot, G | 2004 | Chest | A study of ironworkers working at the site from September 11-15, 2001 had one or more respiratory symptom five months after the attack. Fifty-three percent had evidence of lung function abnormalities. |
| 12 | Lederman, S | 2004 | Environmental Health Perspectives | Birth outcomes for women living within two miles of the WTC had smaller babies than those living farther away, after controlling for other factors. |
| 13 | Lin, S | 2005 | American Journal of Epidemiology | Residents living near the WTC site were significantly more likely to have new-onset respiratory symptoms, compared to residents 6 miles away. |
| 14 | Tapp, LC | 2005 | American Journal of Industrial Medicine | Transit workers evaluated seven months after 9/11/01 with dust cloud exposure had more symptoms of PTSD and depression compared to those without these exposures. |
| 15 | Mann, JM | 2005 | American Journal of Industrial Medicine | A 42 year old highway patrol officer who arrived on September 11 th and was in the dust cloud developed severe respiratory symptoms and was found to have interstitial lung disease on open lung biopsy. |
| 16 | Reibman, J | 2005 | Environmental Health Perspectives | 56% of residents surveyed in lower Manhattan had new onset lower respiratory symptoms. 26% of the residents had persistent new-onset respiratory symptoms. |
| 17 | Banauch GI | 2005 | Critical Care Medicine | One year post-collapse, 23% of FDNY responders who had been heavily exposed to WTC dust had persistent lung dysfunction, as compared with only 11% of moderately exposed and 4% of unexposed firefighters. |
| 18 | Banauch. G | 2006 | American Journal of Respiratory and Critical Care Medicine | Pulmonary function was compared before and after September 11 th . A significant decline in pulmonary function was noted in FDNY personnel who were present at the WTC from September 11-13, 2001, about 12 times more than would be expected from normal aging. |
| 19 | Herbert, R | 2006 | Environmental Health Perspectives | Over 9000 WTC responders were examined over 2.5 year period from July 2002 to April 2004. 69% reported new or worsened respiratory upper and lower symptoms while performing WTC work. Symptoms persisted to the time of examination in 59% of these workers. 28% of responders had abnormal breathing tests. |

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|----|----------------|------|--|--|
| 20 | Mauer, MP | 2007 | Journal of Occupational and Environmental Medicine | Nearly half of NY State personnel (1,400) responding to the WTC had lower and upper respiratory symptoms, and one third reported psychological symptoms. Participants were evaluated from May 2002 – November 2003. |
| 21 | Buyantseva, LV | 2007 | Journal of Occupational and Environmental Medicine | 44% of police officers surveyed at one month and 19 months after September 11 th had persistent cough, and other respiratory symptoms. Rates of lower respiratory symptoms increased significantly from 2001 to 2003. |
| 22 | Izbicki, G | 2007 | Chest | 26 firefighters (FDNY) developed sarcoidosis in the five years after September 11, 2001. The incidence of sarcoidosis was significantly (nearly 8 times) increased when compared to the years before September 11 th . |
| 23 | Mendelson, D | 2007 | Journal of Occupational and Environmental Medicine | 25 World Trade Center workers with lower respiratory symptoms had chest imaging revealing air trapping. Air trapping in these workers may be a result of disease of the small airways in the lungs. |
| 24 | Wheeler, K | 2007 | Environmental Health Perspectives | WTC rescue, recovery and clean-up workers were surveyed in the WTC Health Registry and found elevated rates of newly diagnosed asthma. |
| 25 | Brackbill, RM | 2007 | Morbidity and Mortality Weekly Report. | Data from the New York City Dept of Health Registry show that, two to three years after 9/11, survivors of buildings that collapsed or that were damaged as a result of the WTC attack reported substantial physical and mental health problems. The long-term effects require followup. |
| 26 | Perrin, MA | 2007 | American Journal of Psychiatry | This NYC DOH Registry study compared the rates of posttraumatic stress disorder (PTSD) across different occupations involved in rescue/recovery work at the WTC site and found that PTSD was significantly higher among those who performed tasks not common for their occupation. |
| 27 | Tao, XG | 2007 | Journal of Occupational and Environmental Medicine | Respiratory health among cleanup workers at the WTC disaster site was evaluated approximately 20 months after the initial exposure; compared with those never at the site, WTC workers were more than three times as likely to report lower respiratory symptoms. |

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|----|---------------|------|---|--|
| 28 | Perera, FP | 2007 | Environmental Health Perspectives | Exposure of pregnant women to the WTC dust cloud may have contributed to a reduction in cognitive development of their children at age 3. |
| 29 | DiGrande, L | 2008 | Journal of Traumatic Stress | NYC DOH Registry surveyed 11,037 adults who had lived south of Canal Street in New York City on 9/11, and found that that posttraumatic stress disorder (PTSD) is a continued health problem in the local community. |
| 30 | Farfel, M | 2008 | Journal of Urban Health | NYC DOH Registry data estimate that between 3,800 and 12,600 adults experienced newly diagnosed asthma and 34,600–70,200 adults experienced PTSD following the attacks, suggesting extensive and continuing health impacts. |
| 31 | De la Hoz, RE | 2008 | International Archives of Occupational and Environmental Health | In a cohort of World Trade Center workers, five categories of disease were predominant: upper airway disease (78%), gastroesophageal reflux disease (58%), lower airway disease (49%), psychological (42%) and chronic musculoskeletal illness (18%). |
| 32 | De La Hoz, RE | 2008 | American Journal of Industrial Medicine | In addition to upper and lower airway disorders, vocal cord dysfunction has been found in World Trade Center workers. |
| 33 | Moline, JM | 2008 | Mount Sinai Journal of Medicine | Clinicians at Mount Sinai developed a medical screening program to evaluate the health status of workers and volunteers who sustained exposure at the WTC disaster site. The program has successfully recruited nearly 22,000 responders, and serves as a model for the rapid development of programs to assess the health of others exposed to similar hazards. |
| 34 | Savitz, D | 2008 | Mount Sinai Journal of Medicine | Comparison of the experience at the World Trade Center disaster with 4 past incidents of chemical and radiation releases at Seveso, Italy; Bhopal, India; Chernobyl, Ukraine; and Three Mile Island, USA, provided useful contrasts and insights. |
| 35 | Szeinuk, J | 2008 | Mount Sinai Journal of Medicine | Diffuse parenchymal lung diseases (DPLDs) appear to be associated with heavy or extended exposure to the toxins released at the WTC disaster site. This suggests the need for continued long-term clinical follow-up of this population. |

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|----|--------------|------|-----------------------------------|---|
| 36 | Bills, C | 2008 | Mount Sinai Journal of Medicine | The mental health needs of workers exposed to the events of September 11 th varied widely. These findings suggest the need for future programs for disaster workers to include accessible mental health treatment services as well as comprehensive post-disaster surveillance. |
| 37 | Enright, P | 2008 | Mount Sinai Journal of Medicine | This article describes the approach used to standardize lung function testing for the consortium of institutions providing medical monitoring examinations to WTC responders. |
| 38 | Landrigan, P | 2008 | Mount Sinai Journal of Medicine | To assess effects on children's health associated with the attacks on the WTC, research teams at the Mount Sinai School of Medicine and other academic health centers in New York City launched a series of clinical and epidemiologic studies. They found medical, developmental and mental health problems. |
| 39 | Reissman, D | 2008 | Mount Sinai Journal of Medicine | This article reviews lessons learned about managing the safety and health of workers who were involved in the WTC disaster, including the ongoing responder health burdens, and the changes in federal infrastructure, response planning, and resources for protection of response and recovery personnel. |
| 40 | Stellman, J | 2008 | Environmental Health Perspectives | Working in 9/11 recovery operations is associated with chronic impairment of mental health and social functioning, which greatly exceed population norms. Surveillance and treatment programs continue to be needed. |
| 41 | Prezant DJ | 2008 | Lung | This paper describes treatment recommendations for the main respiratory health consequence from the collapse of the WTC, which has been called "WTC Cough Syndrome", and includes chronic sinusitis, asthma, and/or bronchitis, often complicated by gastroesophageal reflux dysfunction (GERD). |
| 42 | Prezant DJ | 2008 | Mount Sinai Journal of Medicine | This paper reviews several respiratory consequences of occupational and environmental disasters and uses the WTC disaster to illustrate the consequences of chronic upper and lower respiratory tract inflammation. |

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|----|---------------|------|--|---|
| 43 | De La Hoz, RE | 2008 | Journal of Occupational and Environmental Medicine | A variety of gastroesophageal reflux symptoms and disorders is found in WTC responders and seems to be related to the presence of lung disease. |
| 44 | De La Hoz, RE | 2008 | Journal of Occupational and Environmental Medicine | The WTC experience of immigrant responders demonstrates that their health burden is exacerbated by limitations in access to appropriate health care, disability and compensation benefits, and vocational rehabilitation services. |
| 45 | Thomas, PA | 2008 | Environmental Health Perspectives | Asthma prevalence after 9/11 among WTC Health Registry enrollees under 5 years of age was higher than national estimates, and new asthma diagnosis was associated with dust cloud exposure in all age groups. Severity of asthma and persistence of other respiratory symptoms will be determined on follow-up surveys. |
| 46 | Daly, ES | 2008 | Journal of Trauma and Stress | Disaster relief workers may experience an increase in stress symptoms at the anniversary of their traumatic exposure. |
| 47 | Tao, L | 2008 | Environmental Science and Technology | WTC responders were exposed to airborne pollutants through inhalation of dust and smoke released during and after the collapse of the WTC. The potential health implications of these results need more follow up. |
| 48 | Jayasinghe, N | 2008 | Journal of Nervous and Mental Disease | The purpose of this study was to conduct a 1-year follow-up to assess the role of anger in maintaining PTSD. Disaster workers responding to the WTC attacks who developed PTSD continued to report more severe anger than those without; there were statistically significant associations between changes in anger, PTSD severity, depression, and psychiatric distress. |
| 49 | Skloot, G | 2009 | Chest | Lung function abnormalities remain evident more than 5 years after the disaster in many exposed individuals, indicating the need for longer term monitoring of WTC responders. |
| 50 | Katz, CL | 2009 | Psychiatric Bulletin | Ironworkers at Ground Zero tend to have significant psychiatric symptoms likely associated with the traumatic experience of working there during the clean-up operation. |

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|----|---------------|------|--|--|
| 51 | Moline, JM | 2009 | Journal of Occupational and Environmental Medicine | This is a report on 8 cases of multiple myeloma (MM) observed in WTC responders registered in the WTC Medical Program, which underscores the importance of maintaining surveillance for cancer and other emerging diseases in this highly exposed population. |
| 52 | Chandran, SK | 2009 | Ear Nose Throat Journal | Many persons who were exposed to the Ground Zero site have otolaryngologic (Ear Nose and Throat) conditions that are common in persons who were not so exposed. Therefore, otolaryngologists involved in the care of such patients should be cautious about assigning a diagnosis of "WTC syndrome" without a comprehensive examination to look for other possible etiologies. |
| 53 | Brackbill, RM | 2009 | JAMA | Acute and prolonged exposures at the WTC site were both associated with a large burden of asthma and posttraumatic stress symptoms 5 to 6 years after the September 11 WTC attack. |
| 54 | Bills, CB | 2009 | Psychiatric Quarterly | These findings personalize the symptom reports and diagnoses that have resulted from the 9/11 responders' exposure to Ground Zero, yielding richer information than would otherwise be available for addressing the psychological dimensions of disasters and show that large scale qualitative surveillance of trauma-exposed populations is both relevant and feasible. |
| 55 | Weiden, MD | 2009 | CHEST | Airways obstruction was the predominant physiology underlying the reduction in lung function post-9/11/01 in FDNY-WTC rescue workers presenting for pulmonary evaluation. |
| 56 | Szema, AM | 2009 | Allergy Asthma Proc. | Chinatown asthma rates remain higher than among other groups (29% versus the NYC reference rate of 13%). It is possible that exposure to toxins on September 11, 2001 accentuated the effect of subsequent exposure to air pollution. |

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|----|---------------|------|--|---|
| 57 | De la Hoz, RE | 2009 | Journal of Occupational and Environmental Medicine | In 136 former WTC workers and volunteers, atopy (the genetic tendency to develop allergic diseases) seemed to be a risk factor for presumably WTC-related upper airway disease, but not for lower airway disease. |
| 58 | Stamell, EF | 2009 | The Journal of Trauma | This review discusses issues in pediatric disaster preparedness to hopefully foster discussion for future strategies. |
| 59 | Webber, MP | 2009 | Environmental Health Perspectives | Protracted work exposures at the WTC site increased the odds of respiratory and gastro-esophageal reflux disease (GERD) symptoms 4 years later; these data strongly suggest the need to minimize additional exposures during recovery and cleanup phases. |
| 60 | Chiu, S | 2009 | Journal of Affective Disorders | This study evaluated the performance of a modified Center of Epidemiologic Studies Depression Scale (CES-D-m), which captured symptoms in the past month, in comparison to the Diagnostic Interview Schedule (DIS) in identification of major depressive disorder in WTC-exposed retired Fire Department, City of New York (FDNY) firefighters and found that the CES-D-m performed well in identifying those at elevated risk. |
| 61 | Yehuda, R | 2009 | Psychoneuroendocrinology | This study looked at levels of stress hormones in 28 survivors of the World Trade Center attacks on September 11, 2001 who received psychological treatment for PTSD symptoms and their relationship to outcome of treatment. |
| 62 | Yehuda, R | 2009 | Biological Psychiatry | This study found that several genes involved in stress hormone signaling are differentially expressed among those with current PTSD. |
| 63 | Evans, S | 2009 | Journal of Clinical Psychology | Eight hundred forty-two disaster relief workers who had been deployed to the World Trade Center (WTC) following September 11, 2001 completed a battery of comprehensive tests measuring PTSD and social and occupational functioning. Workers with PTSD were more likely to have a history of trauma, panic disorder, and depression. |

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|----|-------------|------|--|---|
| 64 | Reibman, J | 2009 | Journal of Occupational and Environmental Medicine | Residents and local workers as well as those with work-associated exposure to WTC dust have new and persistent respiratory symptoms with lung function abnormalities 5 or more years after the WTC destruction. |
| 65 | Chemtob, CM | 2009 | Disasters | The relationship between exposure to the WTC attacks, increased substance use, functional impairment and mental health service use was assessed through an in-school survey of directly exposed students (N = 1040) attending the five middle and five high schools nearest the WTC. Students with one WTC exposure risk factor had a five-fold increase in substance use, while those with three or more exposure risks had a nearly 19-fold increase. |
| 66 | Hoven, CW | 2009 | Clinical Child and Family Psychology Review | The “Children of First Responder and WTC Evacuee Study”—a two-site longitudinal study—is currently underway in the United States (New York City) and in Israel (Tel Aviv area) in an effort to understand the impact of different patterns of mass violence on the children of responders. |
| 67 | Giosan, C | 2009 | Journal of Anxiety Disorders | This study examined the relationships between memories for a single incident traumatic event - the 9/11 attack on the WTC-- and posttraumatic stress disorder (PTSD) in 2641 disaster restoration workers deployed at the WTC site in the aftermath of the attack. |
| 68 | Mauer, MP | 2009 | Lung | This study found that sophisticated breathing tests called impulse oscillometry revealed signs of respiratory disease in NYS WTC responders in comparison with unexposed NYS employees. |
| 69 | Corrigan, M | 2009 | Am J Public Health | A short computerized, screening questionnaire effectively identified elevated PTSD risk, higher Counseling Services Unit use, and functional impairment among firefighters and therefore may be useful in allocating scarce postdisaster mental health resources. |

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|----|----------------|------|------------------------------------|--|
| 70 | Laumbach, RJ | 2009 | Am J Epidemiol | The authors investigated the occurrence of respiratory symptoms among persons living outside of Lower Manhattan in areas affected by the WTC particulate matter plume and found the plume was not strongly associated with respiratory symptoms outside of Lower Manhattan. |
| 71 | Bern, AM | 2009 | Environ Sci Technol | This paper describes the development of a procedure for screening urban background dust for the presence of WTC dust. |
| 72 | Boscarino, JA | 2009 | Psychiatry Res | This study looked at the relationship between a peritraumatic panic attack during a traumatic event and later mental health status. |
| 73 | Boscarino, JA | 2009 | Soc Psychiatry Psychiatr Epidemiol | This study attempted to identify common risk factors associated with PTSD onset and its course. |
| 74 | Lowers, HA | 2009 | J Expo Sci Environ Epidemiol | Slag wool can be used as a signature marker to identify areas that contain potential residual WTC dust contamination at concentrations that are less than average background levels for the material. |
| 75 | Franz, VA | 2009 | Clinical Psychology Review | This article reviews research on the impact of the September 11th terrorist attacks on psychiatric patients. |
| 76 | Adler, JM | 2009 | Journal of Personality | In this study, a nationally representative sample of 395 adults wrote accounts about the 9/11 terrorist attacks approximately 2 months after 9/11. |
| 77 | Baschnagel, JS | 2009 | Journal of Anxiety Disorders | In this study, 308 undergraduates were assessed for coping prior to the 9/11 WTC attack and for PTSD symptomatology at one and three-months post-9/11. |
| 78 | DiMaggio, C | 2009 | Substance Use and Misuse | In analyses controlling for age, gender, median household income, and employment-related exposure to the terrorist attacks, this study found that each two mile increment in distance away from the WTC site was associated with 18% more substance use related diagnoses in the population studied. |

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|----|-------------|------|--|---|
| 79 | Pfeffer, CR | 2009 | International Journal of Psychiatry in Medicine | After September 11, 2001, bereaved (those who lost a loved one) compared to nonbereaved had significantly higher rates of posttraumatic stress disorder (PTSD; 68.1% versus 0%) and major depressive disorder (45.5% versus 9.5%), and bereaved had significantly different levels of certain hormones. |
| 80 | Richman, JA | 2009 | Substance Use and Misuse | This study examined the prevalence of negative beliefs related to terrorism and whether these beliefs were related to distress and drinking. |
| 81 | Endara, SM | 2009 | BMC Public Health | The findings from this large population-based study suggest that women who were pregnant during the terrorist attacks of September 11, 2001 had no increased risk of adverse infant health outcomes. |
| 82 | Lin, S | 2010 | International Journal of Occupational and Environmental Health | Residents living within one mile of the WTC surveyed after 9/11 responding two and four years later to follow-up surveys that asked about lower respiratory symptoms (LRS), medical history, psychological stress, and indoor environmental characteristics were found to have a continuing burden of symptoms associated with LRS. |
| 83 | Lin, S | 2010 | Arch Environ Occup Health | This study found that after 9/11/2001 there was an immediate increase in hospital admissions for respiratory problems after the disaster and a delayed increase in cardiovascular and cerebrovascular admissions. |
| 84 | Dimaggio, C | 2010 | Psychiatry Res | Mathematical models were used to show that, in the months following the attack, each 2-mile increment in distance closer to the WTC site was associated with a 7% increase in anxiety-related diagnoses in the population. |
| 85 | Bowers, B | 2010 | J Clin Rheumatol | This paper describes 2 rescue workers with significant exposure from the WTC collapse, one who presented with joint pain and one with eye problems; both ultimately turned out to have sarcoidosis. |

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|----|---------------|------|-------------------------------|--|
| 86 | Rosen, CS | 2010 | Psychiatr Serv | This study analyzed community survey data to identify subgroups of children who were at highest risk of posttraumatic stress disorder (PTSD) after the September 11 attacks, and showed that the risks were higher among 4th graders and among children who had a friend or family member directly exposed to the attacks. |
| 87 | De la Hoz, RE | 2010 | J Occup Environ Med | This study examined the association of WTC exposure and findings on nocturnal polysomnogram (sleep studies), as well as known predictors of obstructive sleep apnea (OSA) in 100 responders and found that OSA was associated with obesity and male sex, but not with occupational WTC exposure indicators in those studied. |
| 88 | Mauer, MP | 2010 | Occup Med (Lond). | This paper found that, even in a moderately exposed responder population, lower respiratory effects were a persistent problem 5 years post-9/11, indicating that some WTC responders require ongoing monitoring. |
| 89 | Mauer, MP | 2010 | Int Arch Occup Environ Health | This study found that moderately exposed New York State employees who responded to the WTC disaster experienced health impacts from exposures 2 years post-9/11 and that exposure to smoke may have had a greater lower respiratory impact than resuspended dust. |
| 90 | Chiu, S | 2010 | J Affect Disord | FDNY investigators evaluated the performance of a modified Center of Epidemiologic Studies Depression Scale (CES-D-m), which captured symptoms in the past month, in comparison to the Diagnostic Interview Schedule (DIS) in identification of major depressive disorder in WTC-exposed firefighters and found that the CES-D-m performed well in identifying those at elevated risk. |

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Study links post-9/11 work to autoimmune diseases

March 25, 2015

New York – People who performed prolonged work at the site of the 2001 World Trade Center terrorist attack may have an increased risk for developing autoimmune diseases such as rheumatoid arthritis and lupus, according to a study from Yeshiva University’s Albert Einstein College of Medicine.

Researchers found that workers’ risk to develop such diseases during the decade following 9/11 increased by 13 percent for every month that they spent at the site. Workers who spent 10 months at the cleanup site were more than 3 times as likely to develop the diseases as workers who stayed for one month.

Researchers said the most common autoimmune diagnoses included:

- Rheumatoid arthritis (37 percent)
- Spondyloarthritis (22 percent)
- Inflammatory myositis (14 percent)
- Systemic lupus erythematosus (12 percent)
- Systemic scleroderma (5 percent)
- Sjogren’s syndrome (5 percent)

“We believe that this is the first study to demonstrate that prolonged WTC exposure is an important predictor of post-9/11 systemic autoimmune diseases,” lead author Dr. Mayris Webber said in a press release. “It is our hope that increased awareness of this association can lead to earlier diagnosis and treatment.”

The study was published online March 16 in the journal *Arthritis & Rheumatology*.



- by Nancy Walsh
Senior Staff Writer, MedPage Today

Action Points

- There is a strong association of new onset systemic autoimmune disease with prolonged work exposure at the World Trade Center disaster site after the 9/11 terrorist attack.
- The odds ratio for autoimmune diseases rose by 13% for each month individuals spent working at the site.

The list of ailments afflicting the World Trade Center first responders has grown to include systemic autoimmune diseases, a new study reported.

The conditional odds ratio for autoimmune diseases rose by 13% for each month individuals spent working at the site (OR 1.13, 95% CI 1.02-1.26), according to Mayris P. Webber, DPH, of the department of epidemiology and population health, Montefiore Medical Center in New York City, and colleagues.

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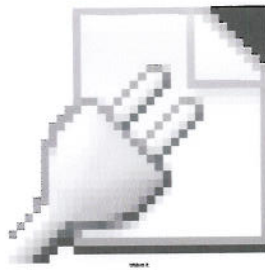
And for those who spent 10 months working at the site the risk tripled (OR 3.09, 95% CI 1.21-7.94), the researchers reported online in Arthritis and Rheumatology.

"The terrorist attacks on the World Trade Center (WTC) buildings and the subsequent building collapses and fires exposed rescue/recovery workers to aerosolized WTC dust, an amalgam of pulverized cement, glass fibers, silica, asbestos, lead, polycyclic aromatic hydrocarbons, polychlorinated biphenyls, and polychlorinated furans and dioxins," they noted.

The result has been the development of various respiratory and other diseases including asthma, gastroesophageal reflux, and cancer in up to 70% of the exposed New York City fire department (FDNY) members, but the entire range of potential health effects is not yet known and may take decades to fully manifest.

The FDNY-WTC Health Program has been following almost 16,000 firefighters and emergency medical system responders who worked at the site during the 10 months of cleanup that followed the attack.

Autoimmune diseases have been linked with multiple environmental exposures, including silica, hydrocarbons, and particulates.



These autoimmune conditions include rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), dermatomyositis, vasculitis, and Sjogren's syndrome, and most often have been reported after many years of exposure and predominantly among women.

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Each case was matched with four controls.

The vast majority of cases and controls were white males. Median age at the time of hire was 27, and median age at the time of diagnosis was 50. Exposure was considered high, with presence at the site during at least 2 months, in 73%.

Unlike chronic exposure, there was no significant association for acute exposure (OR 1.85, 95% CI 0.86-3.89). There also was no association with smoking (OR 1.16, 95% CI 0.62-2.20) or PTSD (OR 1.40, 95% CI 0.58-3.14).

In a sensitivity analysis intended to account for disease latency by removing the five cases that were diagnosed within the first 2 years after the attack, chronic exposure was associated with a 17% increase per month of exposure (OR 1.17, 95% CI 1.05-1.31), the researchers reported.

The finding of an increase in autoimmune disease among WTC responders was "unexpected and highlights the need for increased clinician awareness of the possibility of these and perhaps other autoimmune disorders in their WTC-exposed male patients."



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- Reviewed by Henry A. Solomon, MD, FACP, FACC Clinical Associate Professor, Weill Cornell Medical College and Dorothy Caputo, MA, BSN, RN, Nurse Planner

Autoimmunity Rising in 9/11 Workers

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- **by Nancy Walsh**
Senior Staff Writer, MedPage Today

Action Points

- There is a strong association of new onset systemic autoimmune disease with prolonged work exposure at the World Trade Center disaster site after the 9/11 terrorist attack.
- The odds ratio for autoimmune diseases rose by 13% for each month individuals spent working at the site.

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And for those who spent 10 months working at the site the risk tripled (OR 3.09, 95% CI 1.21-7.94), the researchers reported online in *Arthritis and Rheumatology*.

"The terrorist attacks on the World Trade Center (WTC) buildings and the subsequent building collapses and fires exposed rescue/recovery workers to aerosolized WTC dust, an amalgam of pulverized cement, glass fibers, silica, asbestos, lead, polycyclic aromatic hydrocarbons, polychlorinated biphenyls, and polychlorinated furans and dioxins," they noted.

The result has been the development of various respiratory and other diseases including asthma, gastroesophageal reflux, and cancer in up to 70% of the exposed New York City fire department (FDNY) members, but the entire range of potential health effects is not yet known and may take decades to fully manifest.

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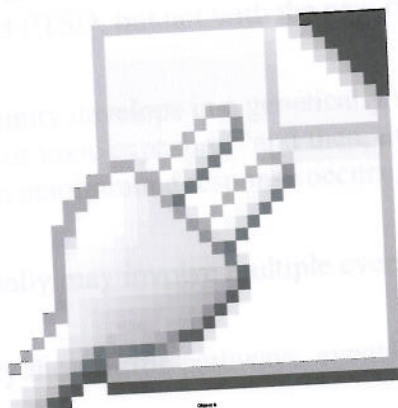
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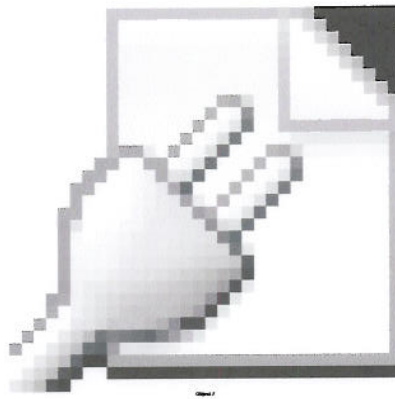
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last updated 03.19.2015

- **Primary Source**

Arthritis and Rheumatology

Source Reference: Webber M, et al "Nested case-control study of selected systemic autoimmune diseases in World Trade Center rescue/recovery workers" *Arthritis Rheum* 2015; DOI: 10.1002/art.39059.



THE GUPTA GUIDE

Sanjay Gupta, MD, Editor

RHEUMATOLOGY 03.18.2015

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by Nancy Walsh
*Senior Staff Writer, MedPage
Today*

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2 COMMENTS

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Claims-Based Index for RA Severity Doesn't Match Disease Activity

— Healthcare insurance databases are prone to confounders.

by *Pauline Anderson*
Contributing Writer, MedPage Today

An algorithm that was developed to approximate rheumatoid arthritis (RA) severity using insurance claims-based variables is poorly correlated with a score for disease activity, a new external validation study has found.

The correlation between the claims-based index for rheumatoid arthritis severity (CIRAS) and the disease activity score in 28 joints calculated using C-reactive protein (DAS28-CRP) was poor (Pearson correlation coefficient=0.07; $P=0.24$), according to Rishi J. Desai, PhD, Division of Pharmacoepidemiology and Pharmacoeconomics, Department of Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, and colleagues.

The paper appeared in *Arthritis Research and Therapy*.

RA severity is a complex concept that depends on a combination of disease activity, physical function impairment, and physical damage to the joints. Studies using healthcare utilization databases are prone to residual confounding by disease severity.

To address this problem, another study developed an algorithm to create the CIRAS that uses variables from claims, and reported moderate correlations between medical records and claims-based indices.

In the absence of a standard clinical measure for RA severity, Desai and his research team used the DAS28-CRP to validate the claims-based severity measure. This activity measure often drives treatment selection, the authors noted.

The study included 315 RA patients who were enrolled in both the Brigham and Women's Hospital Rheumatoid Arthritis Sequential Study (BRASS) and Medicare, and had at least one valid DAS28-CRP measured after a year of continuous enrollment in Medicare.

Most of the subjects (81%) were female. Their mean age was 70 years and the median DAS28-CRP and CIRAS were 3.3 and 4.4 respectively

In addition to a low correlation between the CIRAS and DAS28-CRP, the study found the correlation between CIRAS and the multi-dimensional health assessment questionnaire (MD HAQ) physical function score was also low

assessment questionnaire (MD-HAQ) physical function scores was also low (Pearson correlation coefficient=0.08; $P=0.17$). MD-HAQ may be indicative of frailty and an important confounder, said the authors.

Adding more variables from both medical and pharmacy claims as predictors in a linear regression model didn't substantially improve the performance of the algorithm in predicting DAS28-CRP.

"These findings suggest that CIRAS may not accurately approximate disease activity or frailty in observational studies of RA treatments using insurance claims data," wrote the authors.

"Claims-based algorithms for clinical disease activity should be rigorously tested in distinct populations in order to establish their generalizability."

An important contribution of this study is that it highlights the importance of external validation of claims-based algorithms, said the authors.

There are several possible explanations for why CIRAS performed poorly in this study. The original study used RA records-based index of severity (RARBIS) and most clinical parameters measured through RARBIS, including arthritis flares and x-ray and lab results, aren't captured in claims or in CIRAS.

"Therefore, the poor performance of CIRAS against DA28-CPR may simply reflect the inability to account for important clinical parameters" wrote the authors

As well, they added, there were important differences between the original cohort and the one in this study, including differences in gender, healthcare utilization patterns, and disease activity.

Daniel H Solomon is supported by National Institutes of Health (NIH) grants, receives research grants from Amgen and Eli Lilly and Company,

serves in unpaid roles on studies sponsored by Pfizer, Novartis, Eli Lilly and Company, and Bristol-Myers Squibb and receives royalties from UpToDate.com. Seoyoung C, Kim is supported by an NIH grant, received research support from Pfizer and tuition support for the Pharmacoepidemiology Program at the Harvard School of Public Health partially funded by the Pharmaceutical Research and Manufacturers of America foundation.

Dr. Desai reports owning Biogen Idec stock due to spouse's employment.

Michael E Weinblatt has received consulting fees, speaking fees, and/or honoraria from MedImmune, Crescendo Bioscience, and Bristol-Myers Squibb (less than \$10,000 each) and has received research grant support from those companies.

Nancy Shadick has received research grant support from MedImmune, Crescendo Bioscience, Amgen, AbbVie and Genentech.

LAST UPDATED 04.20.2015

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Arthritis Research and Therapy

Source Reference: Desai RJ, et al "An external validation study reporting poor correlation between the claims-based index for rheumatoid arthritis severity and the disease activity score" *Arthritis Res Ther* 2015; DOI: 10.1186/s13075-015-0599-0.

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