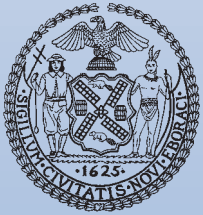


A Six-Year Assessment: *September 2001-September 2007*



Michael R. Bloomberg, Mayor
Nicholas Scoppetta, Commissioner

WORLD TRADE CENTER HEALTH IMPACTS ON FDNY RESCUE WORKERS

**FIRE DEPARTMENT, CITY OF NEW YORK
BUREAU OF HEALTH SERVICES
WTC MEDICAL MONITORING & TREATMENT PROGRAM**

Each year on the anniversary of 9/11, two Towers of Light beam heavenward in commemoration of the 2750 people killed in the attacks on the World Trade Center on September 11, 2001. The Towers of Light stand as a memorial, a symbol of hope and resiliency and a reclamation of New York City's strength and identity.

WORLD TRADE CENTER HEALTH IMPACTS ON FDNY RESCUE WORKERS

A Six-Year Assessment: September 2001-September 2007

The purpose of this publication is to share important information the Department has gathered concerning the physical and mental health effects of 9/11 on our membership.

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Kelly KJ, Niles J, McLaughlin MT, Carroll S, Corrigan M, Al-Othman F, and Prezant D.
World Trade Center Health Impacts on FDNY Rescue Workers, A Six-Year Assessment:
September 2001-September 2007. Fire Department, City of New York, 2007.





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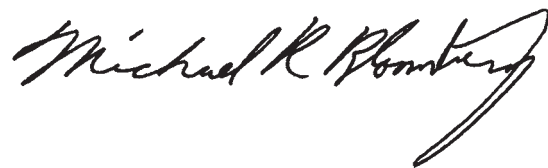
Message from the Mayor of the City of New York Michael R. Bloomberg

In the hours, days, weeks and months following the terrorist attacks on the World Trade Center, New York City Firefighters and emergency services personnel were called upon to make extraordinary sacrifices. Your heroic rescue and recovery efforts, which were the embodiment of selflessness, formed the foundation of the City's post-9/11 rebirth.

In the years that have passed since the attacks, the FDNY's Bureau of Health Services has kept close track of how work at the site affected rescue workers, physically and emotionally. This report is the result of their painstaking efforts to study the long-term effects of the rescue and recovery effort on the people who carried it out. Hopefully, it will give all of you an overview and a better understanding of how first responders as a group were, and continue to be, affected. The more information we have about this situation, the better able we will be to provide monitoring and treatment to those who need it.

In September 2006, I appointed a WTC Health Panel composed of representatives from all City agencies that serve or represent individuals affected or potentially affected by WTC-related illnesses. The Panel members were asked to develop recommendations to ensure that WTC health resources are sufficient to provide first-rate care for everyone whose health was or may be affected by the WTC attacks and their aftermath. The Panel also was asked to make recommendations to guarantee that City policies regarding WTC-related health issues are coordinated, comprehensive and responsive to both current and emerging health care needs. The Panel's report, "Addressing the Health Impacts of 9/11," as well as my subsequent testimony before the U.S. Senate, stressed the need for federal funding to fully support all WTC-related medical monitoring and treatment programs, including this critical program at FDNY. I accepted all of the Panel's recommendations, which we are working to implement.

This is just one small part of what the City of New York owes to you, our Firefighters and emergency medical personnel. Please know that the herculean efforts carried out by the FDNY's first responders on 9/11 and in the months thereafter will never be forgotten.



Message from the Fire Commissioner Nicholas Scoppetta



When the World Trade Center collapsed on 9/11, it unleashed a cloud of dust and debris the likes of which this City had never seen before. Among the many unknowns in the aftermath of that terrible day, one that loomed particularly large was the question of how that cloud would affect our members' health. The FDNY's Chief Medical Officers, Drs. Kerry Kelly and David Prezant, realized almost immediately after the attack that the short- and long-term effects of exposure to the World Trade Center site needed to be monitored. Together with a host of partners--from Fire and EMS unions, to the National Institute of Occupational Safety & Health (NIOSH)--they created a program specifically tailored to the needs of our members. It monitors not only the medical, but also the psychological effects that this catastrophe had, and continues to have, on our first responders.

More than 14,200 FDNY first responders have been examined by BHS during the past five years. This report presents the data culled from those examinations in a clear, understandable format. These objective data were an important part of the Mayor's WTC Health Panel's deliberations and recommendations contained in the report, "Addressing the Health Impacts of 9-11." The information contained in both of these reports will help us not only deliver the health services that best fit our members' needs, but also help ensure future funding by presenting comprehensive data on our needs.

To those who labored at the WTC site, this report comes with a pledge: We will continue to provide our members with the best medical and psychological monitoring and treatment for as long as it is needed.

A handwritten signature in black ink that reads "Nicholas Scoppetta". The signature is written in a cursive, flowing style.

Message from the Chief of Department Salvatore J. Cassano

For several long, difficult months after 9/11, thousands of you worked rescue and recovery at the site where the Towers had stood and where 343 FDNY members lost their lives. I witnessed firsthand the many days, nights, weekends and holidays our Firefighters spent there, under physically and mentally grueling conditions. It was a painful time that none of us will ever forget. And, unfortunately, it has left us with a lot of questions regarding the long-term effects on our members.

Thankfully, the Bureau of Health Services was there with us from the very beginning. On the very day of the attacks, they observed first responders suffering a variety of conditions--from eye and skin irritation, to nasal congestion and breathing difficulties. As the weeks and months passed, they continued to monitor and treat our Firefighters and EMS personnel for their physical and psychological needs.

This report is designed to give you an overview of how the World Trade Center first responders, as a group, have been affected medically by their work at the site. More than 14,200 of you contributed, making this one of the most comprehensive studies done on the subject. Read it carefully. But remember that it is important to continue your participation in the monitoring program, because having such valuable data will help us secure funding to continue with this work in the future.

Thank you all for your dedication to this Department in the aftermath of 9/11. Your sacrifices will not be forgotten.



**Letter from John Howard, MD, Director
National Institute for Occupational Safety and Health
Centers for Disease Control and Prevention**



Dear FDNY Community:

I am pleased to see the important work of the FDNY compiled in this new book. The National Institute for Occupational Safety and Health (NIOSH) has provided funding since 2002 to FDNY for medical screening, monitoring and treatment. As Director of NIOSH, I became aware shortly after 9/11 that responders, their families and others were deeply concerned with the question of whether exposures to airborne contaminants at Ground Zero posed ongoing risks for adverse health effects. It also became clear that robust scientific studies, based on good clinical assessments, were key for identifying symptoms and trends in health effects that could be used to begin to answer the question.

Since that time, I have had the opportunity to meet many of you who served at Ground Zero. I have been touched by your stories of heroism, hope and faith. FDNY has been a leader in efforts to address the questions about health effects associated with WTC exposures. Early on, as a partner in federally funded programs, FDNY provided medical screening and monitoring of responders. Those efforts laid the groundwork for subsequent initiatives to identify trends in illness among FDNY responders, both individually and collectively, to publish scientific studies that are invaluable for furthering our collective knowledge and to guide treatment. The FDNY program not only provides needed medical care, it also captures data that will help us develop an accurate picture of the 9/11 health outcomes, greatly increasing the ability to identify, prevent and treat illnesses.

I am impressed by the quality of the program, as reflected by the contents of this book, and I look forward to continued partnership with you, FDNY, and others to answer the questions that concern us all.

Sincerely,

A handwritten signature in black ink, which appears to read "J. Howard". The signature is written in a cursive style and is followed by a horizontal line.

Message from the Bureau of Health Services

In the aftermath of 9/11, the health consequences to our FDNY members (Fire and EMS) were both immediate and far-reaching. In the hours after the collapses, members fought to survive while working to find lost coworkers and civilians. They struggled to breathe particle-laden air and to clear eyes, noses and mouths of fallen debris. The fires continued to burn until December of 2001. Our Department, carrying out its rescue, recovery, emergency medical care and fire suppression roles, maintained a continuous presence at the site until its closure in July 2002. Our rescue workers were the first in, the last out and the most exposed, working at the deepest levels.

The need to evaluate and monitor the health effects of this exposure was evident early on. That is why the Bureau of Health Services, with the help of labor and management, developed this program, which began in October 2001, just weeks after 9/11. This report is an outgrowth of that work; although there are still many unanswered questions, it gives us the chance to share what we do know at this point in time.

Some of the information gathered comes from comprehensive medical questionnaires, some from testing, some from FDNY retirement statistics and some from the FDNY's Counseling Services Unit. We also have included in this book the NYC Department of Health and Mental Hygiene Clinical Guidelines for Adults Exposed to the WTC Disaster. We ask that you bring it to your personal doctor to assist in caring for your health.

This report can only begin to address the question raised by many of our rescue workers: "How are we doing"? The information we gather from this program will help us answer this question, both now and in the future. We owe it to all our members to share all information we gather and analyze. We know that without the participation of our membership, this program could never succeed.

The need remains for long-term monitoring of both active and retired Firefighters and EMS members, not only to examine current medical issues, but also to look for any late-emerging symptoms or diseases that could occur in the future. We remain committed to providing evaluations and treatment for the physical and mental health consequences of WTC exposure for our exposed members. Obtaining the resources to fully fund this program, provide these services and share this information have been and will continue to be among our top priorities.

Be well, stay safe and continue to take care of yourselves and your families.



Dr. Kerry Kelly
Chief Medical Officer, BHS



Dr. David Prezant
Chief Medical Officer, OMA



Dr. Kerry Kelly



Dr. David Prezant

Letter from Firefighting Unions



Stephen J. Cassidy



John J. McDonnell

Dear UFA and UFOA Members:

Words cannot capture our experiences on 9/11/01 and in the days, weeks and months thereafter. We lost 343 of our Brothers. We do not want to lose one more. Most of us--some for many months--served at the WTC site, the Fresh Kills landfill or the Medical Examiner's office. Although we cannot change the exposures we experienced, we can improve our health through medical monitoring and treatment.

Within a month of the 9/11 attacks, BHS initiated comprehensive medical screenings for FDNY members. We worked with BHS in designing the FDNY BHS World Trade Center Medical Monitoring and Treatment Program specifically for our members. Your periodic annual medical is the World Trade Center medical for those Firefighters who were on the job on 9/11/01. Together--the City, FDNY, BHS, IAFF, UFA and UFOA and our fellow unions--successfully advocated for funds from the United States Congress for long-term medical and mental health monitoring and treatment.

We urge all members exposed on 9/11 and in the aftermath to participate in the FDNY BHS World Trade Center Medical Monitoring and Treatment Program. The program has been expanded to include treatment for all WTC-related symptoms. The program includes diagnostic testing, outside counseling referrals and *free medications for WTC-related conditions*. BHS continues to schedule active and retired members for repeat, follow-up exams every 12 to 18 months.

This book on the medical and mental health impacts of 9/11 provides valuable information and guidelines for every member, their families and their health care providers. We strongly recommend that you thoroughly review this important information. If you have questions after reading the book, please bring them to your health care providers. Take the enclosed WTC diagnosis and treatment guidelines to your personal physician.

We are grateful to BHS for its insight, vision and dedication to protecting our members' health. Both unions continue to serve as active and voting members on the World Trade Center Medical Monitoring and Treatment Program Steering Committee. We look forward to our continued collaborative efforts. We thank our members for their honorable service. We wish you all the very best health--today, tomorrow and in the future.

Sincerely,

A handwritten signature in black ink that reads "Stephen J. Cassidy". The signature is written in a cursive style.

Stephen J. Cassidy
UFA, Local 94

A handwritten signature in black ink that reads "John J. McDonnell". The signature is written in a cursive style.

John J. McDonnell
UFOA, Local 854

Letter from EMS Unions

Dear EMS Members:

Your heroic actions on 9/11/01 and your dedication in the months that followed will never be forgotten. We also will never forget our two lost members. We thank you for making us proud.


From the onset, we worked together with FDNY-BHS to design a medical examination specifically for our members. Together with the City, FDNY, UEP, UEMSO, SOA, AFSCME, AFL-CIO and our fellow unions, we were able to secure funds from the United States Congress to provide periodic comprehensive medical monitoring and treatment through the World Trade Center Medical Monitoring Program.

Active members receive this comprehensive medical as part of their annual physical examination. Retirees have been and will continue to be contacted for follow-up WTC Medical Monitoring. This program provides valuable surveillance and resources for diagnostic testing, respiratory and mental health treatment and *free medications for WTC-related conditions*.

This book sheds light on the medical and mental health impacts during the first five years since 9/11/01. Read it thoroughly. Share it with your health care providers. Inform the program administrators and your health care provider of any changes in your health status. Take the enclosed WTC diagnosis and treatment guidelines to your personal physician.

We urge all members who were exposed at the World Trade Center site to continue to participate in the WTC Medical Monitoring Program every 12 to 18 months. Both UEP and UEMSO continue to serve as active and voting members on the World Trade Center Monitoring and Treatment Program Steering Committee. Supporting this program is one of the most important things we can do to protect the health and safety of our members for the foreseeable future.

Sincerely,



Patrick Bahnken
UEP, Local 2507



Thomas Eppinger
UEMSO, Local 3621



Mark Steffens
SOA



Patrick Bahnken



Thomas Eppinger



Mark Steffens

FDNY Ceremonial Unit member at the September 11, 2006, World Trade Center Memorial Ceremony.



SECTION 1

INTRODUCTION

During the past five years, FDNY's World Trade Center Medical Monitoring and Treatment Program (FDNY-WTC-MMTP) has become a national model in terms of both providing services for Department members and developing comprehensive data on the effects of exposure to the WTC site. These objective data were an important part of the Mayor's WTC Health Panel's deliberations and recommendations released in February 2007. Through a series of charts and graphs, our FDNY report presents the data we have obtained. We hope this information is useful to all of our members, including non-WTC responders, in understanding the known health effects of 9/11. Of course, this FDNY report presents only aggregate data and contains no information about any individual member's health. In performing its medical monitoring and treatment roles, the FDNY-WTC-MMTP, as a top priority, is preserving the confidentiality of members' personal health records and information.

Section 1 of this report provides some background on the FDNY-WTC-MMTP (hereafter referred to as "the FDNY WTC Program"). Section 2 presents aggregate data on the physical health effects of exposures at the WTC on and after 9/11. Section 3 presents aggregate data on the mental health effects of 9/11. Section 4 shows the effects of 9/11 on FDNY member retirements and disability pensions collected. Sections 5 and 6 provide a summary of efforts to date, a brief look at future plans and information about funding the FDNY's programs. **The Appendices provide useful additional information about treatment centers, self-evaluation tips about your potential need for treatment and a list of FDNY WTC publications.**

MISSION

The current mission of the FDNY WTC Program is to evaluate and treat individual FDNY members, both active and

retired, who worked at the WTC sites. The FDNY WTC Program develops plans for future monitoring and treatment needs by analyzing patterns of illness and using this information to answer central questions about the health effects of WTC exposure. Monitoring and treatment are an outgrowth and expansion of what the FDNY Bureau of Health Services (FDNY-BHS) does everyday--improving member health and wellness through periodic medical evaluations, preventive therapies, injury/illness evaluations and treatment.

HISTORY OF THE FDNY WTC PROGRAM

One month after the attacks on the WTC, under the guidance of our Chief Medical Officers, Dr. Kerry Kelly and Dr. David Prezant, FDNY-BHS began comprehensive medical screenings. Both doctors were caught in the collapse and understood the potential short- and long-term health impacts of the unique exposures experienced at the WTC sites by our FDNY rescue workers (Firefighters and EMS members). FDNY-BHS co-designed this program specifically for FDNY members, partnering with the Uniformed Firefighters Association (UFA), the Uniformed Fire Officers Association (UFOA), the International Association of Fire Fighters (IAFF) and Uniformed Emergency Medical Technicians and Paramedics (UEP), Uniformed EMS Officers (UEMSO) and the Supervising Officers Association (SOA).

The periodic medicals and treatment programs already in place for active members supplied the foundation for the FDNY WTC Program and enabled FDNY-BHS to institute the program rapidly. We are proud that our BHS physicians were the first to identify and treat WTC-related illnesses and that the FDNY WTC Program helped to inform other WTC medical programs, including those provided by the Mount Sinai Consortium's¹ WTC Medical Monitoring and Treatment Program for non-FDNY responders and the Bellevue Hospital WTC



Environmental Health Center's Treatment Program.

Recognizing the potential for long-term health consequences from the exposures experienced at the WTC site, the FDNY WTC Program expanded its initial screening programs to include long-term monitoring, disease surveillance for late-emerging problems and treatment. Over time, the FDNY WTC Program also included many scientific partners, including the Centers for Disease Control and Prevention (CDC), the National Institute for Occupational Safety and Health (NIOSH), the Mt. Sinai NY/NJ WTC Health Consortium for non-FDNY responders, the Bellevue Hospital WTC Environmental Health Center, Montefiore Medical Center and Albert Einstein College of Medicine. As of December 31, 2006, more than 14,200 FDNY WTC rescue workers have had medical monitoring examinations and more than 8000 have received follow-up monitoring exams. Outreach activities continue in an effort to give monitoring examinations to all of the approximately 16,200 members with whom the FDNY WTC Program has been in active contact.

The FDNY WTC Program recently has expanded to provide WTC-related medications to active and retired members. The various treatment options available in the program will be discussed in greater detail later in this publication. Treatment provided under the FDNY WTC Program includes services only for WTC-related conditions. For those who did not participate in the WTC rescue and recovery effort and are not eligible for these free medications, the FDNY WTC Program remains important because it has allowed FDNY to provide increased monitoring, expanded treatment options, improved safety benefits and more robust training programs to all members.

FUNDING

In October 2001, only four weeks after the attack, FDNY-BHS began performing standardized medical screenings on

WTC rescue workers with funding provided by NYC and the FDNY. This was the first comprehensive post-WTC exposure medical performed by any medical institution. In November 2001, the CDC granted \$4.8 million to the FDNY to help fund this program from 2002 to 2004. This allowed the FDNY WTC Program to include affected retirees, who previously would have been excluded from BHS monitoring and treatment. By February 2002, FDNY-BHS had conducted screening medical examinations on nearly 10,000 FDNY rescue workers (Fire and EMS, active and retired).

In July 2004, the FDNY received \$25 million from CDC/NIOSH to expand its monitoring program for an additional five years (2004-2009). This funding pays for standardized clinical exams, staffing, scheduling and follow-ups. With this funding, every "annual" or periodic medical evaluation members receive at the FDNY has been improved and expanded to be a WTC periodic medical to include higher quality pulmonary function tests and improved medical and mental health questionnaires. It also supports an FDNY data management group to provide quality assurance and data analysis, so that the FDNY WTC Program can plan for future needs and release its findings to our members. This report, provided to every active FDNY member and affected retiree, is one example of the data management group's work.

The FDNY WTC Program receives funding from the FDNY to provide most work-related treatment for our active members. Since 2005, certain specialized WTC treatments have been provided by supplemental funding through a September 11th Recovery Grant from the American Red Cross (ARC) Liberty Disaster Relief Fund. For retirees, initial funding for WTC-related physical health treatment (respiratory, etc.) came from this ARC grant. For retirees and family members, funding for WTC-related mental health treatment has come from multiple sources,

including the FDNY, IAFF, ARC, FEMA--Project Liberty, SAMSA and various philanthropies. A recent (November 2006) influx of approximately \$20 million from the federal government (NIOSH) now is being used to continue these medical and mental health treatment efforts. We anticipate that this funding will support the program for approximately 12 months.

The FDNY continues its efforts to secure additional federal funding to provide members with continued long-term monitoring and expert treatment. Future federal funding is always contingent upon documented needs; therefore, member participation in the FDNY WTC Program is important.

The FDNY and its unions have been major supporters of this program. Every dollar we receive from the federal government for the FDNY WTC Program is spent only on this program. Both the Fire Commissioner and union leadership have been instrumental in helping FDNY-BHS obtain funding for the FDNY WTC Program.

City government also has played a crucial role. In September 2006, the WTC Health Panel was formed to make recommendations to ensure sufficient funding of WTC health programs in the future. Its report, "Addressing the Health Impacts of 9-11," and the subsequent testimony given by Mayor Bloomberg before the U.S. Senate, vigorously advocate federal funding to fully support the FDNY WTC Program, the Mount Sinai Consortium's WTC Medical Monitoring and Treatment Program for non-FDNY responders and the Bellevue Hospital WTC Environmental Health Center's Treatment Program.

¹ Hospitals in the Mount Sinai Consortium:

- Mount Sinai School of Medicine/I. J. Selikoff Center for Occupational and Environmental Medicine
- Long Island World Trade Center Monitoring and Treatment Programs/Stony Brook Medical Center

- Center for the Biology of Natural Systems, Queens College
- University of Medicine & Dentistry of New Jersey/Robert Wood Johnson Medical School, Environmental & Occupational Health Sciences Institute
- Bellevue Hospital Center/NYU School of Medicine

- BHS Programs/Activity
- BHS Press Clippings
- BHS Published Scientific Articles

BHS WTC PROGRAM TIME LINE—September 2001-April 2007

2001

SEPTEMBER

WTC Attacks
 Tower 1 and 2 collapse
 Total job recall

BHS sets up triage center on Broadway

Tower 7 collapse

BHS treats members for WTC symptoms & injuries

CSU support groups begin, debriefing groups at site

IAFF and NFFF assist FDNY-CSU
 CSU sets up units in Staten Island and Fort Totten, Queens

Dr. Kelly testifies before U. S. Congress on WTC health impact
 Dr. Prezant addresses IAFF Convention on WTC health impact

NY Daily News, Sept. 27th. "Fire Doc Cites Nightmare of Bravest"

OCTOBER

FDNY becomes Project Liberty mental health site

WTC Medicals begin 7 days a week, 3 shifts per day

BHS and CDC partnership to test for heavy metals, PCBs and PAHs

BHS identifies "WTC Cough Syndrome"

FEMA and Project Liberty funding arrive for CSU

Congressional Committee hearings on 9/11

NY Times, Oct. 30th. "A Nation Challenged: The Firefighter's Rampant Coughs and Chest Pain Among Workers at Ground Zero"

NY Newsday, Oct. 30th. "The War on Terror; Breathing uneasily; respiratory problems plaguing Firefighters"

NY Daily News, Oct. 30th. "Firefighters battle 'Trade Center Cough'; 4,000 report problems linked to dust & smoke"

NOVEMBER

FDNY awarded \$4.8 million from CDC for medical screening for years 1 and 2



DECEMBER

Fires at WTC suppressed

2002

JANUARY

Dr. Prezant and Senator Hillary Clinton at joint press conference to secure \$12 million

Dr. Kelly addresses NY Congressional Delegation on 9/11 health effects

NY Daily News, Jan. 20th. "Terror Attacks Take Hidden Toll: Posttraumatic Stress hits Finest, Bravest"



FEBRUARY

BHS completes more than 10,000 WTC Screening Medicals on FDNY members
 WTC Screening Medicals continue 5 days a week, one shift per day

BHS WTC PROGRAM TIME LINE—September 2001-April 2007

2002

MARCH

NY Daily News, March 4th. "Retiring from the Horror Post-9/11 job stress thinning out Bravest & Finest"

NY Daily News, March 24th. "NY Firefighters Struggle with Breathing Problems"



APRIL

Dr. Kelly addresses Congressional Committee on Environmental Conservation, Health and Labor

JULY

WTC site officially closes

FDNY work officially ends at the WTC site

FDNY Free Tobacco Cessation Program begins, supported by Pfizer, IAFF, ACCP and Chest Foundation

American Journal of Respiratory and Critical Care Medicine, July 2002. "Acute Eosinophilic Pneumonia in a New York City Firefighter Exposed to World Trade Center Dust"

NY Newsday, July 30th. "Clinton: Release \$90M for Checkups"

SEPTEMBER

BHS gives testimony at NY Academy of Medicine Specialists WTC Meeting

MMWR, Sept. 11th. "Injuries and Illnesses Among New York City Fire Department Rescue Workers After Responding to the World Trade Center Attacks"

MMWR, Sept. 11th. "Use of Respiratory Protection Among Responders at the World Trade Center Site--New York City, September 2001"

New England Journal of Medicine, Sept. 12th. "Cough and Bronchial Responsiveness in Firefighters at the World Trade Center Site"

NY Daily News, Sept. 9th. "LIGHTS OUT Embracing Life, city firefighters enroll in a new anti-smoking program. Quitting Time for FDNY Firefighters"

NY Times, Sept. 10th. "Threats and Responses: Rescuers Health: Lung Ailments May Force 500 Firefighters off job"

NY Newsday, Sept. 10th. "Report: Many Sapped by 'WTC Cough'; Hundreds on medical leave, restricted to light duty"

OCTOBER

BHS Health Connections newsletter debuts

October 12th Memorial Day Service. Plaque dedication and Medal Ceremony at Madison Square Garden

NY Newsday, Oct. 1st. "Assessing the scope of WTC ailments: Experts study how lung ills may worsen"

NOVEMBER

Joint labor-management initiative for WTC CD 73 Exposure Reports

DECEMBER

Since 9/11/01, 1000 clients at BHS for respiratory treatment

Since 9/11/01, 4000 clients have come to CSU

NY Daily News, Dec 15th. "WTC Study: Workers Still Gasping for Air; half of screened rescuers suffer ailments"

- BHS Programs/Activity
- BHS Press Clippings
- BHS Published Scientific Articles

BHS WTC PROGRAM TIME LINE—September 2001-April 2007

2003

JANUARY

NY Daily News, January 24th. "He'll Hear from Bravest. They want 9-11 aid from Bush at State of Union"

FEBRUARY

Am. J. Resp. Crit. Care Med., February 2003. "Persistent Hyperreactivity and Reactive Airway Dysfunction in Firefighters at the World Trade Center"

MAY

NY Daily News, May 25th. "Sept. 11 Horror Haunts Heroes: physical, mental trauma surfacing"

JULY

First anniversary of Tobacco Cessation Program--more than 600 members and families treated with a 50% success rate

SEPTEMBER

IAFF Annual Health Convention--WTC Health Effects

Environmental Health Perspectives, September 2003. "Biomonitoring of Chemical Exposure among New York City Firefighters Responding to the World Trade Center Fire and Collapse"

OCTOBER

October 15th. First BioPOD exercise successfully completed

Retired members are welcomed back for WTC follow-up medicals

Dr. Weiden testifies on WTC Health of first responders to Congress

DECEMBER

James E. Olsen Foundation provides BHS w/10,000 colon cancer screening kits

FDNY, 2003. "Rising to the Challenge: The Counseling Service Unit of the Fire Department of New York Moves Forward After September 11, 2001"



BHS WTC PROGRAM TIME LINE—September 2001-April 2007

2004

JANUARY

Second BHS 9/11 Behavioral Health Screen sent to UFOA members and UFA retirees

MARCH

Smallpox Vaccination Program begins for health care workers and first responders

APRIL

\$90 million federal grant for WTC Consortium--\$25 million to FDNY-BHS for medical monitoring for 5 years (2004-2009)

Chest, April 2004. "Symptoms, Respirator Use, and Pulmonary Function Changes Among New York City Firefighters responding to the World Trade Center Disaster"

MAY

NY Daily News, May 24th. "1,700 Sue Over 9-11 Sickness Bravest, Finest cite work at WTC and Fresh Kills"



SEPTEMBER

9/11 World Trade Center Health Effects Conference at NYU

Dr. Prezant speaks on "Airway and Lung Disease among FDNY Firefighters"

Dr. Kelly speaks on "Mental Health of FDNY Firefighters"

NOVEMBER

November 11th. Second Annual BioPOD exercise successfully completed

NIOSH WTC Medical Monitoring Steering Committee begins

Joint labor-management partnership with FDNY and Mt. Sinai NY/NJ WTC Health Consortium, including Bellevue Hospital

Environmental Health Perspectives, November 2004. "Induced Sputum Assessment in New York City Firefighters Exposed to World Trade Center Dust"

2005

JUNE

American Red Cross Liberty Disaster Relief September 11th Fund Recovery Grant--\$5.6 million for FDNY-BHS WTC Medical Treatment (7/05-7/07)

Crit. Care Med., June 2005. "Bronchial hyper-reactivity and other inhalation lung injuries in rescue/recovery workers after the World Trade Center collapse"

Curr. Opin. Pulm. Med., June 2005. "Pulmonary disease in rescue workers at the World Trade Center site"

AUGUST

FDNY-BHS begins Enhanced WTC Medical Monitoring Version 2

BHS begins increasing staff size for enhanced medicals

SEPTEMBER

FDNY-BHS Hurricane Katrina relief pre- and post-deployment medicals

NOVEMBER

5600 invitational letters to retirees to rejoin the WTC Medical Monitoring Program

November 10th. Third Annual BioPOD exercise successfully completed



- BHS Programs/Activity
- BHS Press Clippings
- BHS Published Scientific Articles

BHS WTC PROGRAM TIME LINE—September 2001-April 2007

2006

JANUARY

FDNY Commissioner meets key Congressional members for WTC medical funding

The Chief, January 20th. "Link Deaths of 3 Firemen, Cop to WTC Site; Health officials Urge Screening, Offer Free Treatment"

The Chief, January 27th. "Unions Call for Death benefit in Post-9/11 Cases; Wary of Growing Toll Among responders to WTC Site"

FEBRUARY

Dr. Kelly and Dr. Prezant testify before Congress for WTC treatment dollars

Retiree WTC Medical Monitoring Program officially begins

NY Daily News, Feb. 19th. "Clear the Air on 9-11 Health"

MARCH

BHS World Trade Center Medical Monitoring Program Website launched

Dr. John Howard named Coordinator of WTC Programs, announces multi-million-dollar federal grant will be awarded in late 2006 for FDNY BHS to expand WTC treatment

NY Post, March 9th. "\$75M fund to treat 9/11 Cops and Firemen"

APRIL

Chest, April 2006. "Tobacco Free with FDNY" The New York City Fire Department World Trade Center Tobacco Cessation Study

MAY

NY Times, May 2nd. "'Teachable' 9/11 Moment Helped Smokers Quit"

NY Post, May 15th. "Heroes' Breath toll--9/11 Sucks 12 Years from Bravest Lungs"

NY Times, May 16th. "Firefighters' Lung Capacity Suffered after 9/11 Work, Study shows about 10 times usual loss"

NY Post, May 22nd. "Medics Kids Most Shaken After 9/11"

JUNE

NY Newsday, June 1st. "The Responders Health Woes: Their 9/11 Plague: Almost 5 years after the terror attacks, new, critical cases are surfacing"



BHS WTC PROGRAM TIME LINE—September 2001-April 2007

2006 & 2007

JULY

Dr. John Howard, NIOSH Director and WTC Health Coordinator, visits FDNY-BHS site

NY Daily News, July 22nd. "Abandoned Heroes"

NY Daily News, July 23rd. "The Fatalities Among the Forgotten"

NY Daily News, July 24th. "Death Sentence"

NY Daily News, July 27th. "Proof of lung woes Docs detail pain of WTC workers"

AUGUST

More than 1100 retirees receive WTC monitoring medical in first 6 months. FDNY receives \$1.5 million from NIOSH to continue CSU treatment centers

Am. J. Resp. Crit. Care Med., August 2006. "Pulmonary Function After Exposure to the World Trade Center in the New York City Fire Department"

Editorial published in *Am. J. Resp. Crit. Care Med.*, August 2006; 174:235. *The World Trade Center Collapse A Continuing Tragedy for Lung Health?* By Balmes J.R.

NY Newsday, August 2nd. "Study: 9/11 responders lungs impaired"

NY Post, August 9th. "FDNY to Take Closer Look at Heroes' Health"

The Chief, August 11th. "Cites Impact on Health: Clinton: Feds must help 9/11 workers"

SEPTEMBER

5th Anniversary of September 11th

DOHMH WTC Clinical Treatment Guidelines for Adults Exposed to WTC (FDNY and Mount Sinai co-authors)

Comm. Scoppetta testifies at U.S. Congress on WTC health effects Sept. 8th

Mayor Bloomberg forms WTC Health Panel

NOVEMBER

FDNY receives \$20 million supplement from NIOSH to begin free medication program and expand treatment

DECEMBER

BHS begins WTC treatment with free medications

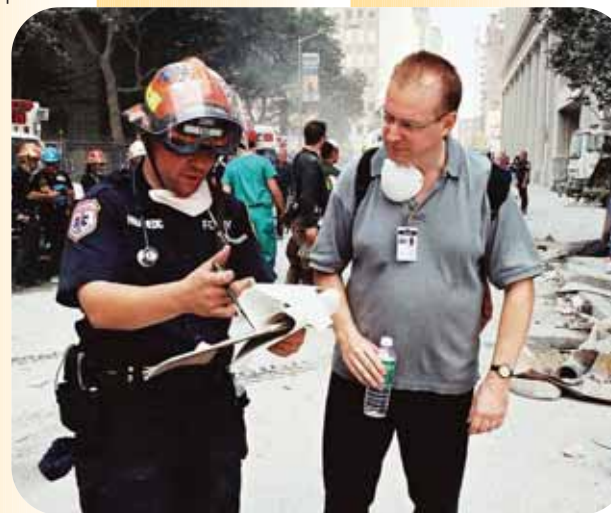
FEBRUARY
MARCH
APRIL

February 13th. Mayor's WTC Panel releases report, "Addressing the Health Impacts of 9/11"; outlines annual health and mental health treatment and monitoring recommendations

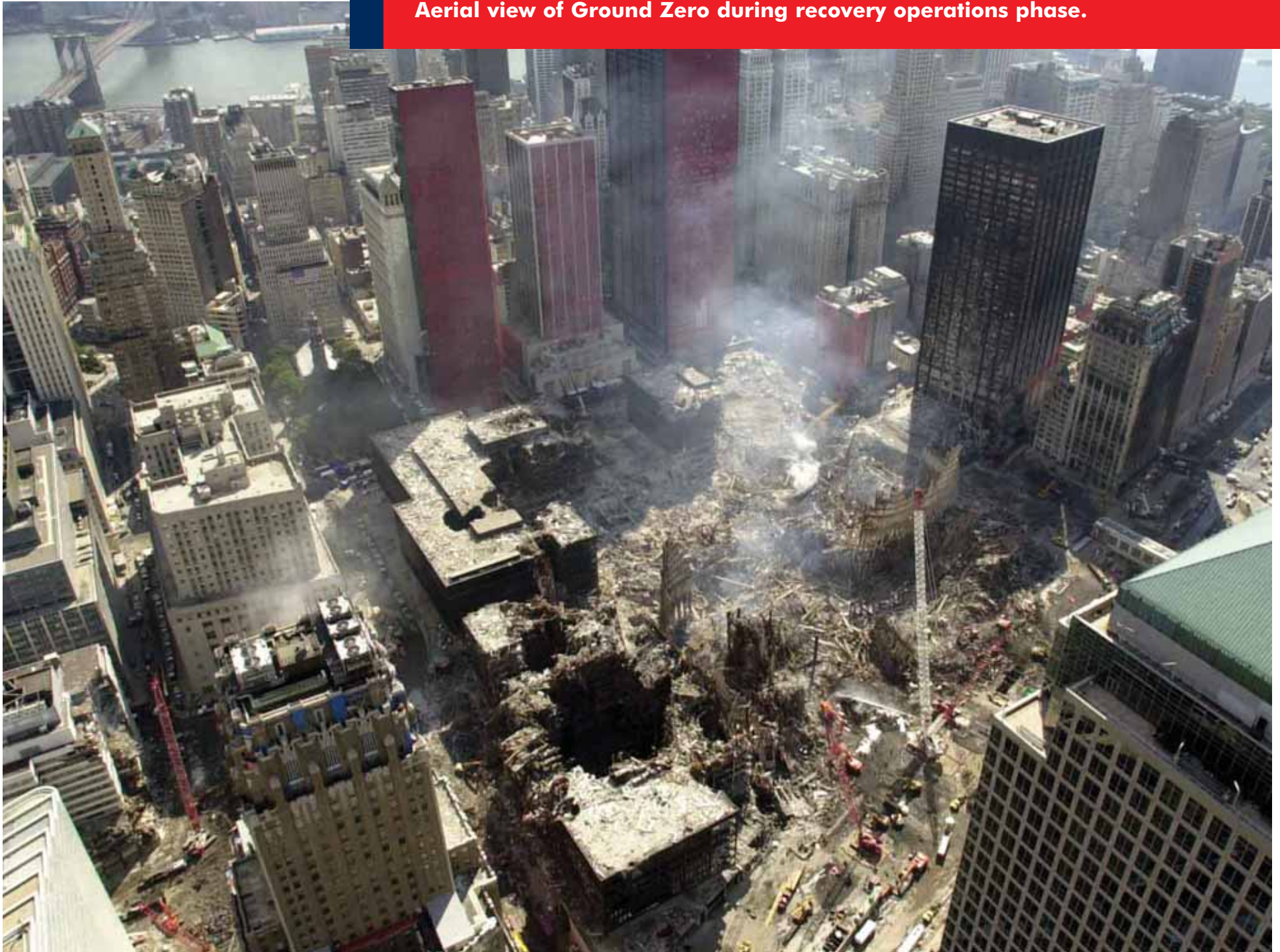
Deputy Mayors Linda Gibbs and Edward Skyler give testimony to U.S. Congress

March 21st. Mayor Bloomberg testifies before U.S. Senate for WTC treatment programs

Chest, April 2007. "WTC Sarcoid-Like Granulomatous Pulmonary Disease in NYC Fire Rescue Workers"



Aerial view of Ground Zero during recovery operations phase.



SECTION 2

MEDICAL AND EXPOSURE ASSESSMENT

The information contained in Section 2 has been gathered from medical questionnaires taken by active and retired FDNY members at the FDNY Bureau of Health Services during medical monitoring evaluations administered post-WTC. Active FDNY members were asked to respond to the questionnaire at their periodic company medical, which now includes the WTC medical.



On 9/11/01, BHS physicians immediately responded to the WTC. They were present during and after the collapse, seeing first-hand how FDNY rescue workers suffered from eye and skin irritation, nasal drip/congestion, coughing, breathing difficulties and other respiratory symptoms. The medical screening program developed by FDNY-BHS four weeks after 9/11 evaluated and monitored these symptoms in our first responders.

Members had blood tests administered, including complete blood cell counts, chemistries, lipid profiles, heavy metal screening and urine analysis. The blood and urine samples from the first 321 FDNY rescue workers were sent to the CDC's National Laboratory to test for more than 110 chemicals, including heavy metals, polycyclic aromatic hydrocarbons, PCBs and dioxins. These tests showed no clinically significant elevations and, therefore, bio-monitoring tests on the rest of our group (more than 13,600 additional members) concentrated on certain highly toxic heavy metals (lead, mercury and beryllium) and total PCBs. Testing found heavy metals to be within normal clinical limits for all of our members and total PCBs to be within normal limits for nearly all. In a group of approximately 50 Firefighters, PCB tests showed mild elevations.

The initial post-9/11 medical evaluation also included a chest x-ray, pulmonary function testing, EKG, hearing evaluations and a physical by our Medical Officers. At each medical, FDNY rescue workers also participated in an educational presentation with a question/answer ses-

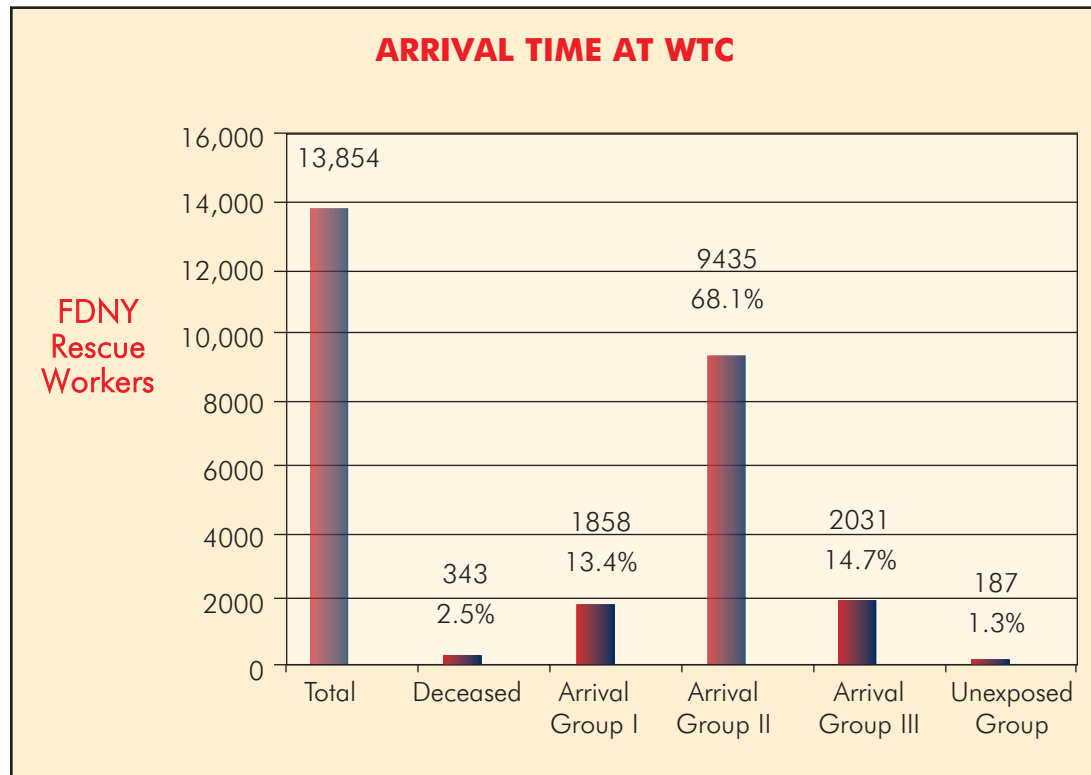
sion that reviewed WTC-related physical and mental health challenges, stress recognition and coping strategies.

To assess the long-term physiological and psychological impacts of 9/11 on rescue workers and their families, the WTC Program developed a series of self-administered, computerized questionnaires, in conjunction with periodic medical interviewing and testing of active members and retirees. The initial questionnaire was conducted from October 2001 to October 2002 and then was replaced with an updated questionnaire that ran from October 2002 until August 2005. The total number of members responding was 9953 in the first year and more than 14,200 cumulatively as of December 31, 2006. In the future, we will strive to give monitoring examinations to all 16,200 members with whom we have been in contact.

Responses have been analyzed for the October 2001 to August 2005 period. We are continuing to compile similar data from August 2005 to date, using newer versions of the computerized questionnaire. We have had an unprecedented response that clearly reflects our members' recognition of the importance of the FDNY-WTC Program and their active participation. We hope that our members will continue to participate, as the information we gain helps us to deliver the health services that best fit our members' needs. The results of these questionnaires, as shown on the following pages, indicate that many WTC-related symptoms and conditions (respiratory and mental health) are strongly tied to arrival time at the WTC site.

SECTION 2 • MEDICAL QUESTIONNAIRE DATA

In an effort to better understand the health effects of Ground Zero exposure on FDNY employees, we classified rescue workers into four groups, based on their estimated arrival times at the WTC site.¹



- **Arrival Group I** 1858 FDNY rescue workers present at WTC on the morning of 9/11/01 during the collapse
- **Arrival Group II** 9435 FDNY rescue workers who first came to the WTC site in the afternoon of Day 1 or anytime on Day 2
- **Arrival Group III** 2031 FDNY rescue workers who first came to the WTC site on Day 3 or later
- **Unexposed Group** 187 FDNY rescue workers with no presence, at anytime, at the WTC site

Ninety-nine percent of the group surveyed responded to the WTC. There was a job-wide recall that brought in active members. In addition, many retired members volunteered and that response continued for the weeks and months to come. In the initial trauma of that day, our injured members were taken to local hospital centers (including locations in New Jersey), most with significant orthopedic injuries and a few with severe respiratory injuries requiring mechanical ventilatory support. Members critically injured by falling debris required hospitalization and, for some, orthopedic surgeries to recover. In the first 24 hours, 240 FDNY members were treated in emergency departments and 28 members were admitted to hospitals. Some members had respiratory difficulties that began that day, but for many others, respiratory symptoms surfaced in the days, weeks and months after 9/11/01.

¹ Data analysis collected from questionnaires completed by FDNY rescue workers Oct. 2001-Aug. 2005.

Day 1

- 56% never wore a mask/respirator
- 23% rarely wore a mask/respirator
- 21% mostly wore a mask/respirator

Day 2

- 47% never worn
- 23% rarely worn
- 30% mostly worn

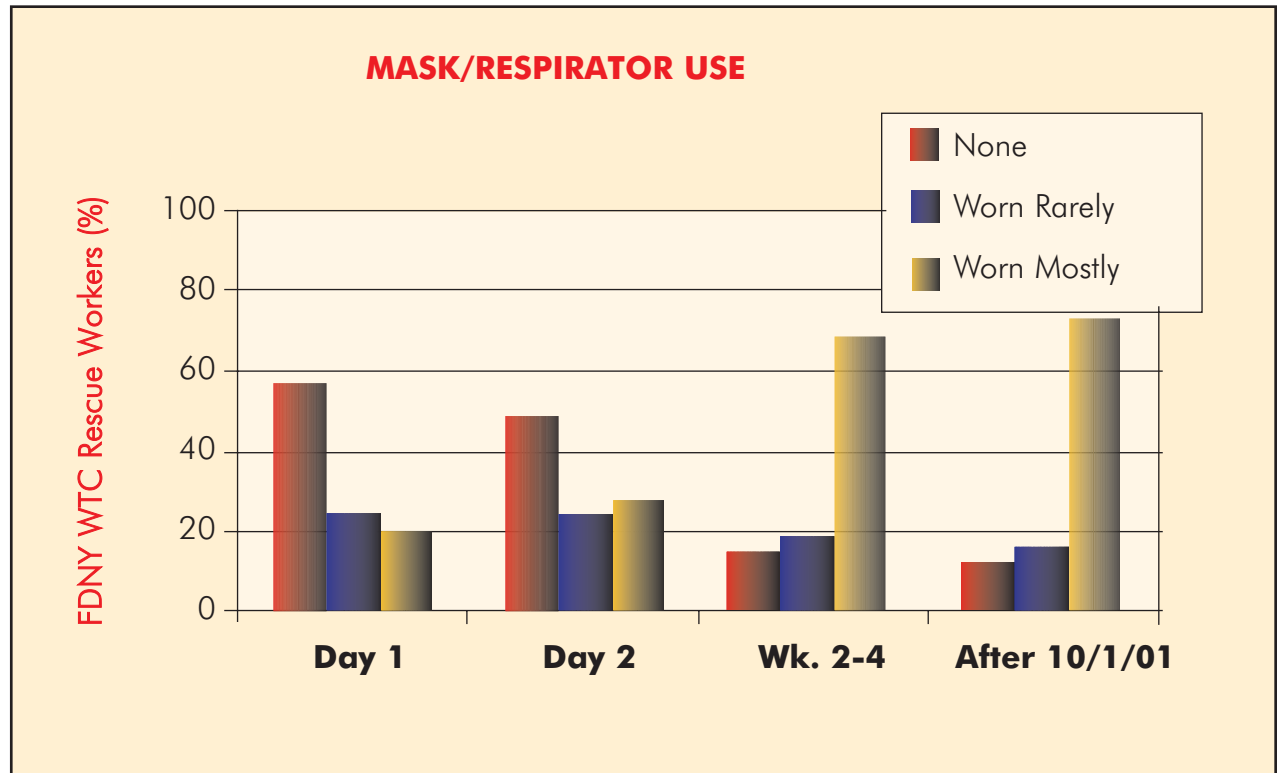
Weeks 2-4

- 12% never worn
- 19% rarely worn
- 69% mostly worn

After Oct. 1, 2001

- 9% never worn
- 16% rarely worn
- 75% mostly worn

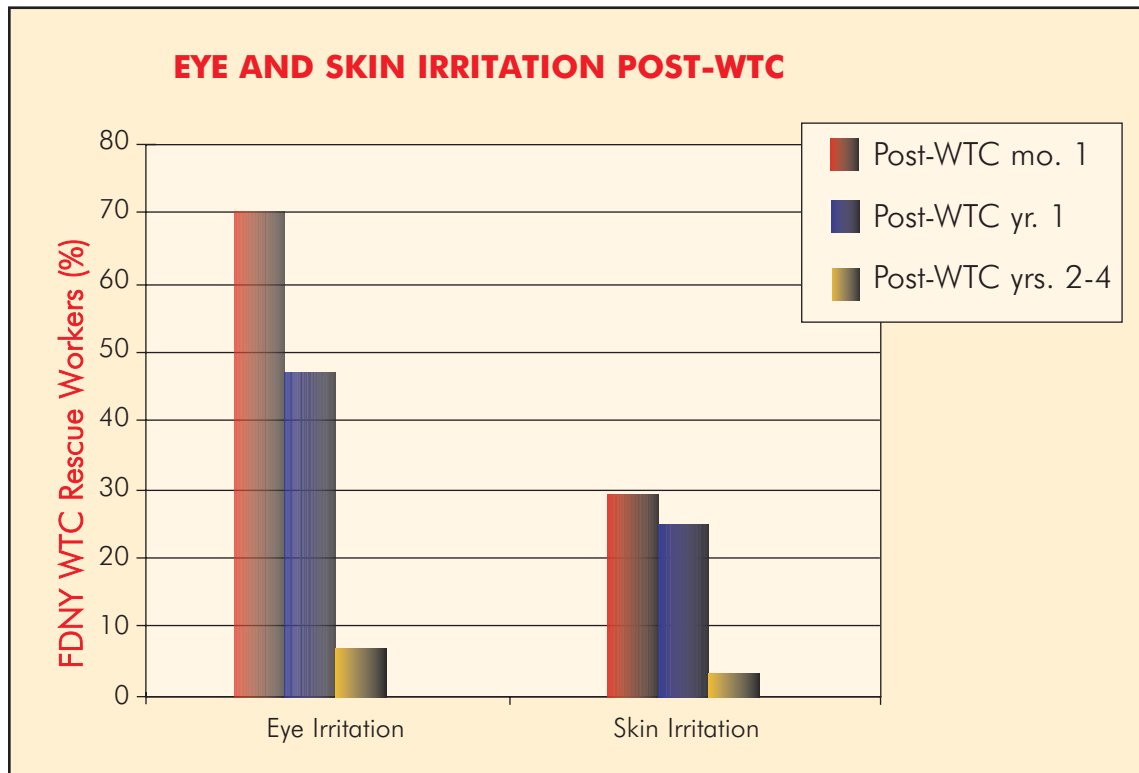
Frequency of mask and/or respirator* use is a prominent factor considered when determining the severity of the exposure experienced by WTC rescue workers.²



When the towers collapsed, an enormous dust cloud with a high concentration of particulate matter consumed lower Manhattan. FDNY first responders constantly inhaled this thick air, a process made worse by strenuous work and open-mouth breathing. On Day 1, even those with self-contained breathing apparatus (SCBA) only had clean air for about 15 minutes. After the SCBAs ran out of air and for the many who did not have an SCBA, there were few respirators available to rescue workers and those who used protection wore dust masks. N95 “TB” respirators are correct for biological emergencies; however, dust, surgical masks and N95 “TB” respirators do not provide adequate respiratory protection at a collapse/fire disaster site. The correct mask for this exposure (P-100 respirator) was not widely available until after the first week. The intense environmental exposure is directly related to the respiratory symptoms/illnesses described throughout this publication.

* A respirator is a specially fitted device worn over the mouth and/or nose that protects the respiratory system of the user.
²Data analysis collected from questionnaires completed by FDNY rescue workers Oct. 2001-Oct. 2002.

The number of rescue workers suffering from eye and skin irritation has decreased dramatically as time has progressed.³



Eye and skin irritations were likely to occur when exposed to the thick dust cloud, as evidenced by the high rates of these symptoms in the first months after 9/11/01. There has been a dramatic decline in the incidence of both types of irritation in years 2-4. Currently, few continue to report eye and skin symptoms.

One Month Post-WTC

- 70% of rescue workers had eye irritation
- 30% had skin irritation

One Year Post-WTC

- 47% had eye irritation
- 25% had skin irritation

Years 2-4 Post-WTC

- 7% had eye irritation
- 4% had skin irritation

³Data analysis collected from questionnaires completed by FDNY rescue workers Oct. 2001-Aug. 2005.

Daily Cough

- 54% of Arrival Group I
- 47% of Arrival Group II
- 31% of Arrival Group III

Shortness of Breath

- 38% of Arrival Group I
- 25% of Arrival Group II
- 14% of Arrival Group III

Wheezing

- 27% of Arrival Group I
- 20% of Arrival Group II
- 12% of Arrival Group III

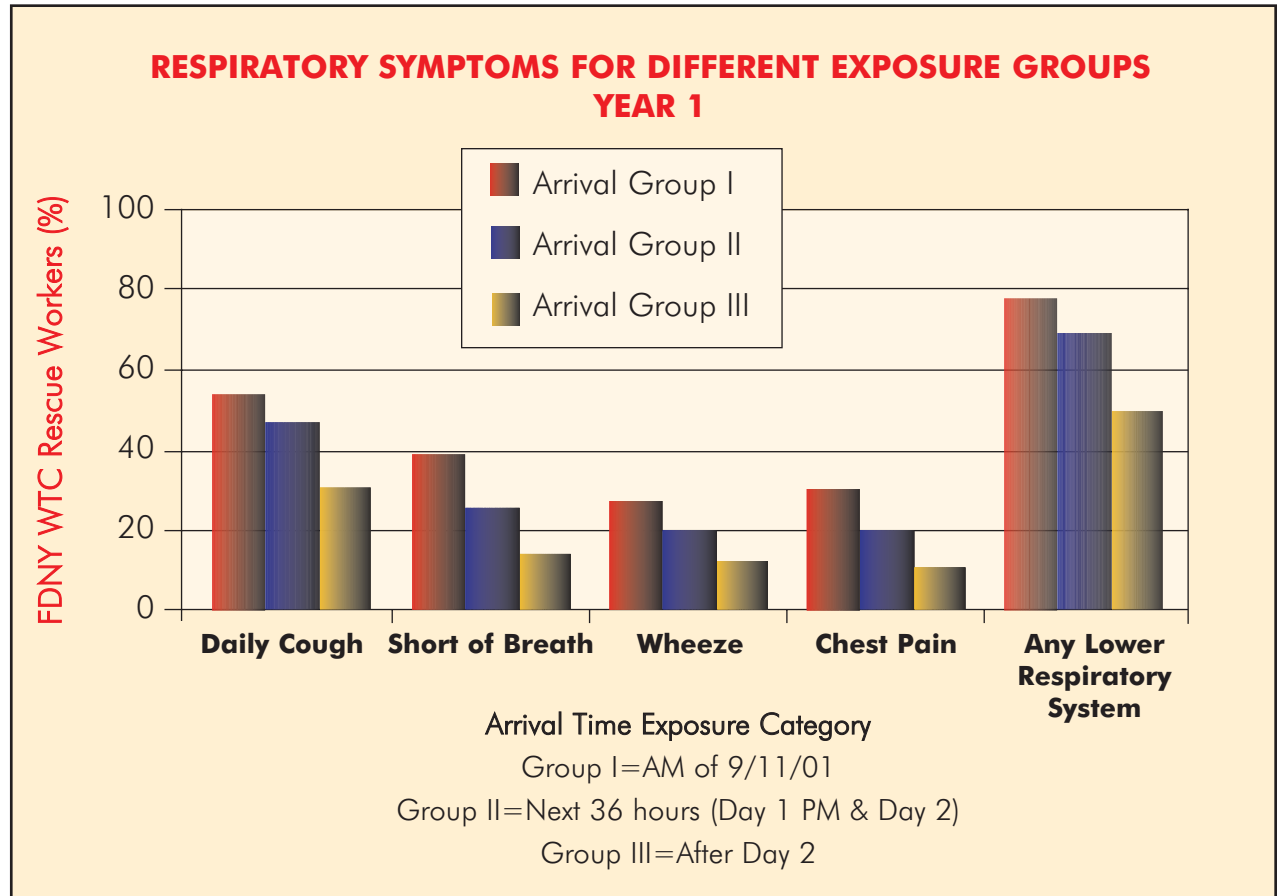
Chest Pain

- 30% of Arrival Group I
- 20% of Arrival Group II
- 10% of Arrival Group III

Any of these Symptoms

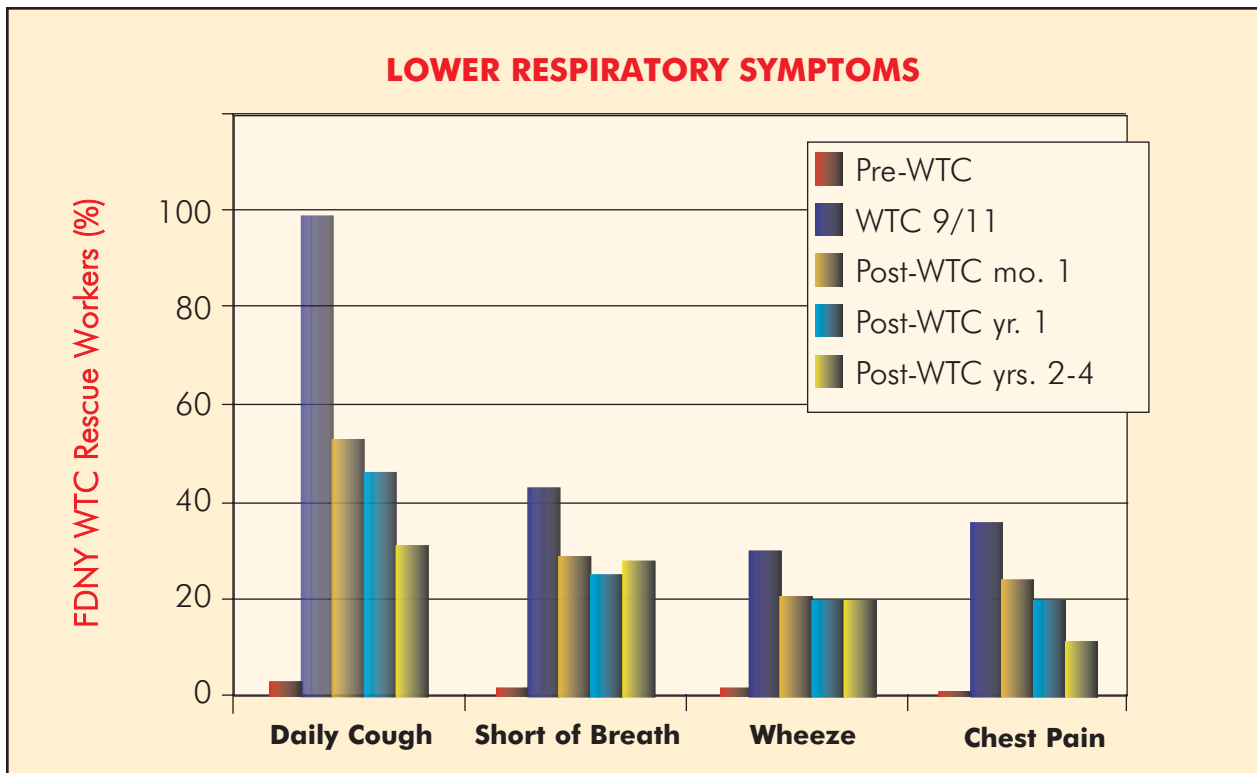
- 79% of Arrival Group I
- 69% of Arrival Group II
- 50% of Arrival Group III

The incidence of respiratory symptoms in the first year after 9/11/01 is directly related to WTC arrival time.⁴



In total, more than 79 percent of those present during the morning of 9/11/01 had at least one lower respiratory symptom, with a large number demonstrating multiple symptoms. Our data show a strong connection between WTC exposure and respiratory ailments. These data clearly indicate that earlier arrival times (especially within the first 48 hours) at WTC by FDNY members are associated with the highest incidence rate for respiratory symptoms. Other scientific groups have mirrored our results, showing a clear association between arrival time and loss of pulmonary function.

With early diagnosis and treatment, the incidence rate of lower respiratory symptoms has declined significantly since 9/11/01, but these symptoms persist in many of our members.⁵



Day 1 exposure to clouds of dust and debris resulted in cough symptoms for 99% of those present at the WTC site. One month later, more than half of our rescue workers were still reporting a daily cough and 2-4 years later, 31% were still struggling with this symptom. With early diagnosis and treatment, the incidence rate of this symptom improved compared to Day 1, but is still significantly higher than before 9/11/01 when only 3% of FDNY rescue workers reported a daily cough. Other lower respiratory symptoms have followed a similar evolution over time. These persistent symptoms, coupled with objective proof of pulmonary function declines (see page 29), are why FDNY WTC rescue workers should continue to participate in the long-term monitoring and treatment programs offered by the WTC Program.

Day 1 9/11/01

- 99% of FDNY rescue workers present were coughing
- 43% had shortness of breath
- 30% were wheezing
- 36% had chest pain

Month 1 Post-WTC

- 53% had a daily cough
- 29% had shortness of breath
- 21% were wheezing
- 24% had chest pain

Year 1 Post-WTC

- 46% had a daily cough
- 25% had shortness of breath
- 20% were wheezing
- 20% had chest pain

Years 2-4 Post-WTC

- 31% had a daily cough
- 28% had shortness of breath
- 20% were wheezing
- 11% had chest pain

⁵Data analysis collected from questionnaires completed by FDNY rescue workers Oct. 2001-Aug. 2005.

Day 1 9/11/01

- 99% of FDNY rescue workers present were coughing
- 80% had nasal congestion
- 63% had sore/hoarse throat

Month 1 Post-WTC

- 53% had a daily cough
- 40% had frequent nasal congestion
- 54% had frequent sore throat

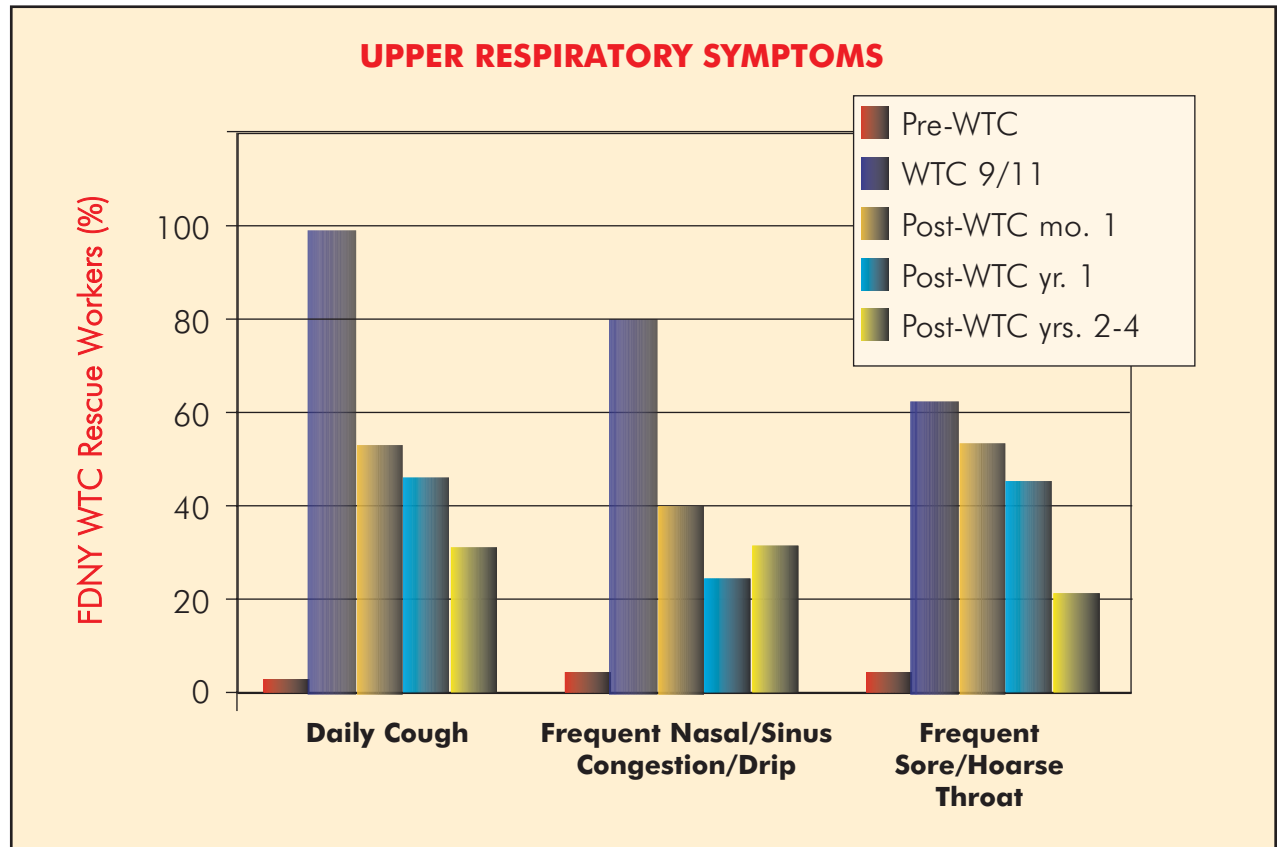
Year 1 Post-WTC

- 46% had a daily cough
- 25% had frequent nasal congestion
- 46% had frequent sore throat

Years 2-4 Post-WTC

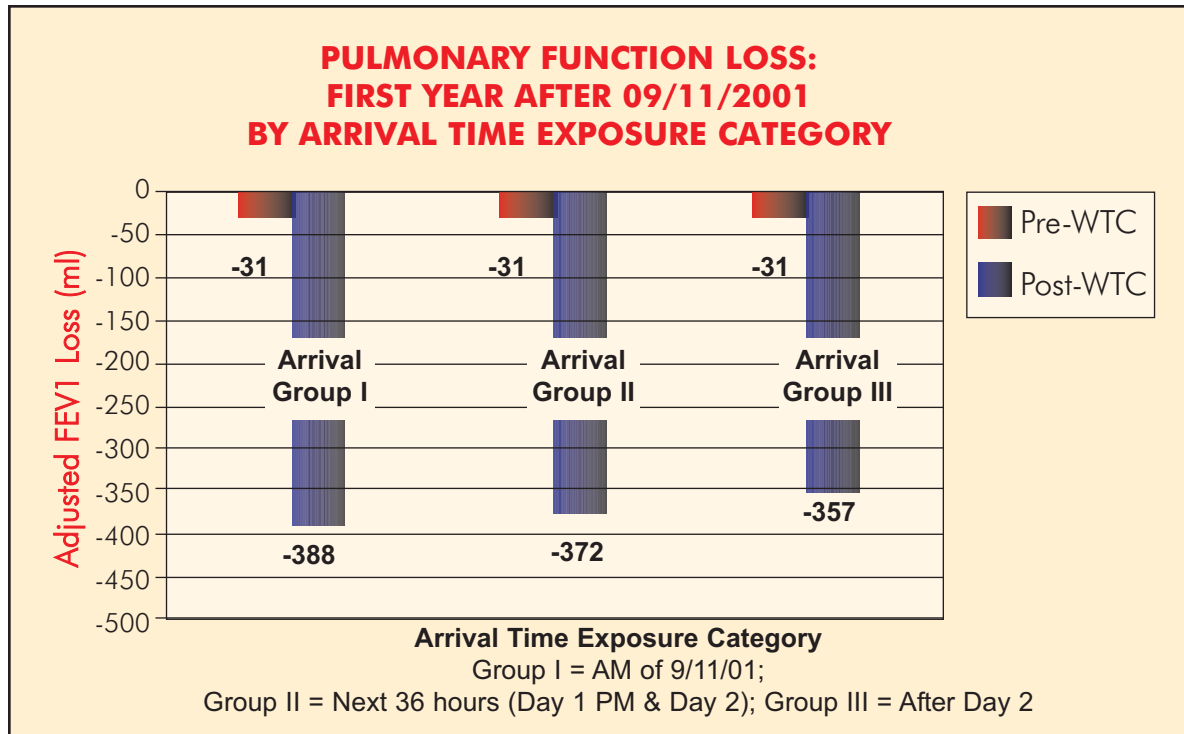
- 31% had a daily cough
- 32% had frequent nasal congestion
- 22% had frequent sore throat

Upper respiratory symptoms were the most common problems experienced by FDNY rescue workers, but these symptoms, while persistent in many, have also shown great improvement over time.⁶



Upper respiratory symptoms (cough, nasal/sinus congestion/drip, sore/hoarse throat) have all followed a similar evolution during the four years following 9/11/01. On Day 1, more than half of our work force experienced all of the above symptoms. One year later, more than half of our rescue workers were still reporting upper respiratory symptoms and 2-4 years later, about 25% were still struggling with daily or frequent symptoms. Particulate matter analysis has shown a highly alkaline pH of WTC dust (like lye), which is extremely irritating to upper and lower airways.

Although loss of lung function can be linked directly to arrival time, all exposure groups experienced an unprecedented decline in lung function within the first 12 months following the WTC attacks.⁷



Since 1997, FDNY rescue workers have participated in a periodic medical evaluation (every 12 to 15 months) to track health problems and determine work eligibility. One part of the evaluation is a pulmonary function test (PFT), which measures forced vital capacity (FVC) and forced expiratory volume after 1 second (FEV1). FVC is the total amount of air one can forcibly breathe out. FEV1 is the amount of air one can forcibly breathe out in the first second. As we grow older, both FVC and FEV1 decline naturally at an average rate of 20-30 ml per year. In this graph, we see a connection between arrival time at the WTC and pulmonary function loss, with members of Arrival Group I demonstrating a greater loss in FEV1 than members of Arrival Groups II and III. Although the reduction in pulmonary function was greatest for those present during the collapse, FEV1 and FVC was decreased even in FDNY rescue workers arriving at later time periods. Similar findings were found for the FVC. Data obtained after September 2002 now are being analyzed and future FDNY-WTC monitoring will allow us to determine if this decline plateaus, improves or continues. For those with symptoms, we believe that treatment is the best way to ensure appropriate diagnoses and improvement.

Pre-WTC

- On average, FDNY rescue workers lose 31 milliliters (ml) of FEV1 each year (similar to US population averages)

Within the First Year Post-WTC

- Members in Arrival Group I lost 388 ml of FEV1 on average (more than 12 times the average pre-WTC annual loss)
- Members in Arrival Group II lost 372 ml of FEV1 on average (12 times the average pre-WTC annual loss)
- Members in Arrival Group III lost 357 ml of FEV1 on average (more than 11 times the average pre-WTC annual loss)

⁷ Data analysis collected from PFTs by FDNY rescue workers Jan. 1996-Sept. 2002.

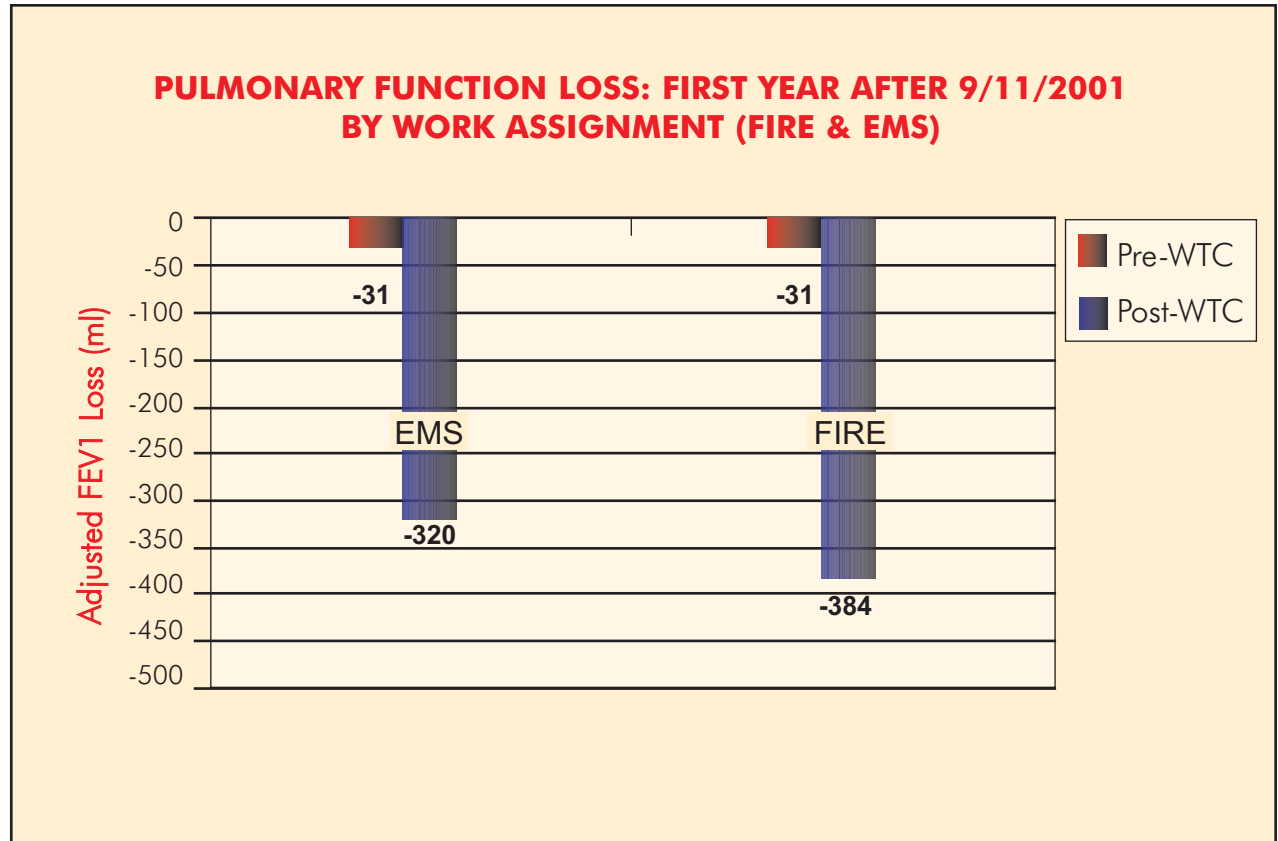
Pre-WTC

- Entire FDNY rescue worker population loses 31 ml of FEV1 each year (near national average)

First Year Post-WTC

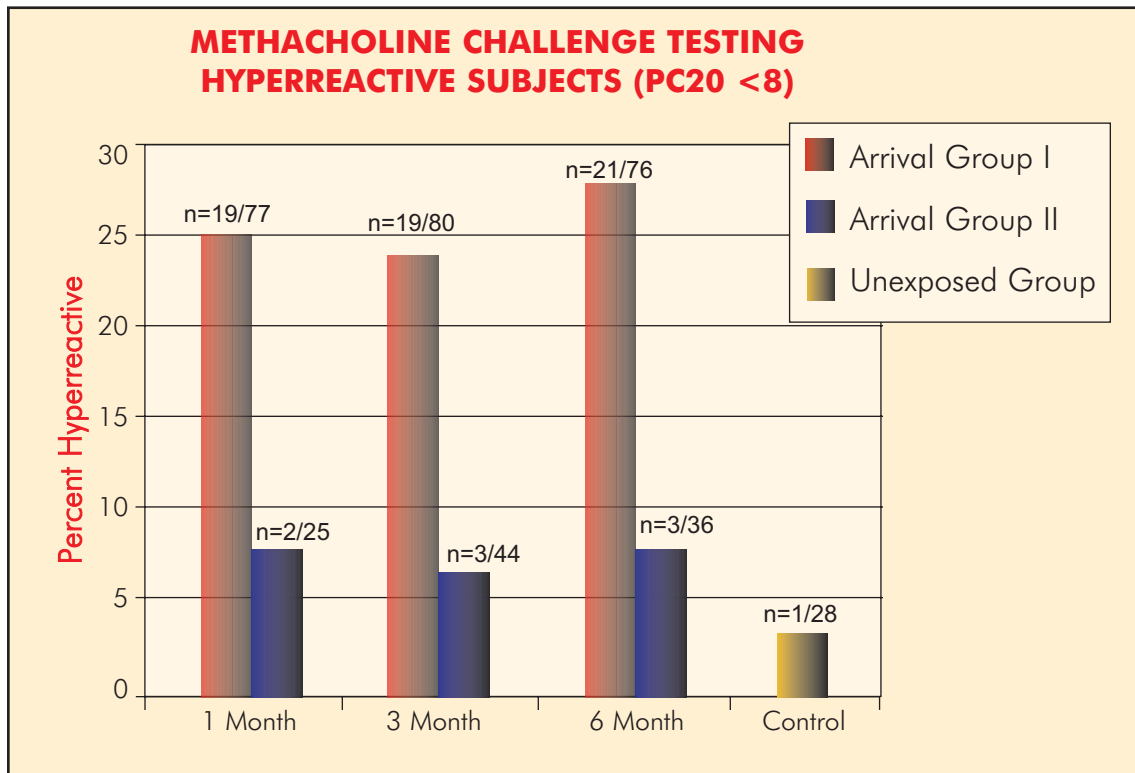
- EMS employees lost 320 ml of FEV1 on average (more than 10 times the average pre-WTC annual loss)
- Firefighters lost 384 ml of FEV1 on average (more than 12 times the average pre-WTC annual loss)
- Firefighters had 20% greater decline in FEV1 than EMS employees

When we break down our rescue workers into two groups, Firefighters had a greater average decline in pulmonary function than EMS members, but both groups still had greater average declines than pre-9/11/01.⁸



The greater decline of FEV1 in Firefighters compared to EMS workers likely is due to the differing roles of each job in the rescue and recovery effort. Fire suppression and search activities kept the Firefighters closer to the burning debris and pulverized rubble. Although EMS workers have lost less lung function than the Firefighters, on average, they still showed a substantial decline in lung function, indicating WTC environmental site exposure. Thus, job-related tasks performed and perhaps proximity to the Ground Zero site played roles in the loss of lung function.

The Methacholine Challenge Test (MCT) is a specialized, objective test used to confirm the diagnosis of asthma in symptomatic FDNY rescue workers who have normal pulmonary function.⁹



Methacholine is a chemical that when inhaled at increasing doses in a controlled setting, identifies who is likely to have asthmatic reactions. In susceptible subjects, this test can provoke an asthma attack (airway spasm). The American Thoracic Society defines significant airway hyperreactivity as a 20% drop in FEV1 at low-dose methacholine levels (<8mg methacholine). Airway hyperreactivity can be especially burdensome to Firefighters who, due to the nature of their job, often are exposed to smoke, fumes or other irritants. Similar to our symptom and PFT data, the methacholine challenge tests indicate a strong correlation with the earliest WTC arrival time. Before the WTC attacks, there was no history of asthma in our Firefighter work force. As shown in the above graph, these new onset cases in FDNY rescue workers were not just acute, temporary effects of exposure. Data we now are analyzing show long-term airway hyperreactivity persistence for 2 to 4 years among those initially affected.

1 Month Post-WTC, in a random sample:

- 24.7% of highly exposed workers have Airway Hyperreactivity (AHR)
- 8% of moderately exposed
- 3.6% of unexposed control group

3 Month Post-WTC, in a random sample:

- 23.8% of highly exposed workers have AHR
- 6.8% of moderately exposed
- 3.6% of unexposed control group

6 Month Post-WTC, in a random sample:

- 27.6% of highly exposed workers have AHR
- 8.3% of moderately exposed
- 3.6% of unexposed control group

⁹Data analysis collected from PFTs by FDNY rescue workers Oct. 2001-April 2002.

15 Years Pre-WTC

- 0 to 5 FDNY rescue workers contract sarcoidosis annually, an average incidence rate of 13/100,000. Most were asymptomatic

9/11/01-9/11/02

- 13 new cases develop in FDNY rescue workers, an 86/100,000 annual incidence rate (or more than a 6-fold increase from pre-WTC levels)

9/11/02-9/11/06

- 13 new cases of sarcoidosis develop in the next four years, an average annual incidence rate of 22/100,000

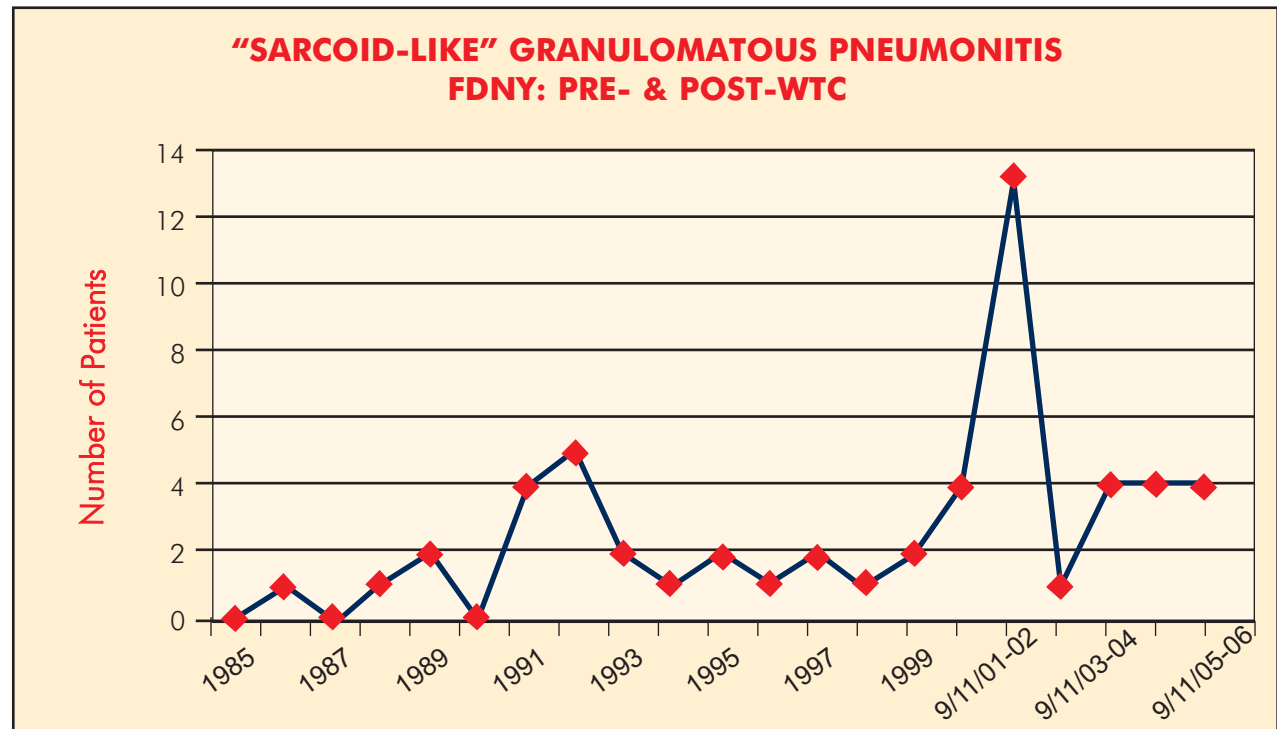
Asthma

- 69% of those diagnosed with sarcoidosis since 9/11/01 had new onset asthma

Airway Hyperreactivity (AHR)

- 8 of 21 (38%) of sarcoidosis patients who take a challenge test have AHR

OTHER RESPIRATORY DISEASES EMERGING AFTER 9/11/01: The incidence of sarcoidosis or WTC sarcoid-like granulomatous pulmonary disease (SLGPD) increased markedly in the first year post-WTC.¹⁰



Sarcoidosis is an inflammatory disease producing tiny lumps of cells (granulomas) in multiple organs, mainly the lungs, lymph nodes and skin, all of which are entry points for occupational and environmental agents. The cause is unclear, but sarcoidosis is associated with exposures to organic and chemical dusts, metals, silica and wood dust or smoke. Compared to population values, FDNY-BHS showed increased incidence of sarcoidosis in FDNY Firefighters during the 15 years pre-WTC, presumably due to smoke exposure. After 9/11/01, the number of new FDNY sarcoidosis cases increased dramatically, especially in the first year post-WTC. In contrast to pre-9/11, most new cases are symptomatic (69%) with shortness of breath, cough and other asthma-like symptoms. Because our cases primarily involve the lung, it may be more accurate to classify them as WTC "sarcoid-like" granulomatous pulmonary disease (SLGPD). Other rare pulmonary diseases in FDNY rescue workers have included 2 with eosinophilic pneumonitis (occurring in 2002 and cured with early diagnosis and treatment) and 4 with pulmonary fibrosis (1 fatality in 2004 and 1 who may need a lung transplant).

FDNY members and trades personnel work at Ground Zero.



MENTAL HEALTH ASSESSMENT

For more than 25 years, the FDNY Counseling Service Unit (FDNY-CSU) has been meeting the needs of the FDNY community. Prior to 9/11/01, it provided counseling for family issues, personal stress or when an FDNY member died. In response to the World Trade Center attacks and the tragic loss of 343 members of our FDNY family from more than 60 firehouses and 2 EMS stations, we quickly adapted and expanded our programs, trained personnel, visited every firehouse and EMS station and added counseling sites to provide emergent and extensive mental health services to members and their families, including the families of deceased rescue workers. The FDNY-CSU played a principal role in the evaluation, treatment and monitoring of the psychological response to the 9/11 attacks. Because our CSU had significant experience and understanding of our members, programs were developed to meet specific needs. Now, in the sixth year after this tragedy, our dedicated staff continues its mission of caring for the mental health of our members (both active and retired) and their families.

In addition, mental health questionnaires from the FDNY WTC Program helped to further identify mental health concerns and trends. One of the goals of these questionnaires was to identify the scope and severity of the psychological and physical damage resulting from the WTC terrorist attacks in an effort to provide focused interventions/treatments and monitor response rates. The information collected is used not only to improve the quality of care provided by the FDNY-CSU and FDNY-BHS, but also to

increase our general understanding of mental health responses after major disasters. This is a critical issue for our members as they are always among the first to respond to such disasters.

Our initial questionnaire asked FDNY rescue workers about arrival time at the WTC and total time spent at WTC sites in the months that followed. The mental health portion asked about emotional well-being through questions aimed at identifying symptoms and behavioral patterns related to stress, anxiety and depression. It examined changes in the ability to function, both in their personal and work lives, which may have occurred due to psychological problems resulting from 9/11, such as anger, irritability and anxiety; memory and concentration problems; changes in eating, sleeping and exercise patterns; and increases in alcohol and tobacco usage. As we had not rigorously collected mental health information pre-9/11, we present these self-reported data without comparison.

The mental health questionnaire also collected data on the number of people utilizing our counseling services and the types of counseling used. It should be noted that the members taking their medicals and responding to these questionnaires were, for the most part, on full-duty, working in the field, but also included our light-duty members and affected retirees.

Our findings after 9/11 show the persistent emotional impact left by this tragedy, with the greatest effects realized in FDNY rescue workers who either were at the WTC site during the collapse or lost loved ones on 9/11.

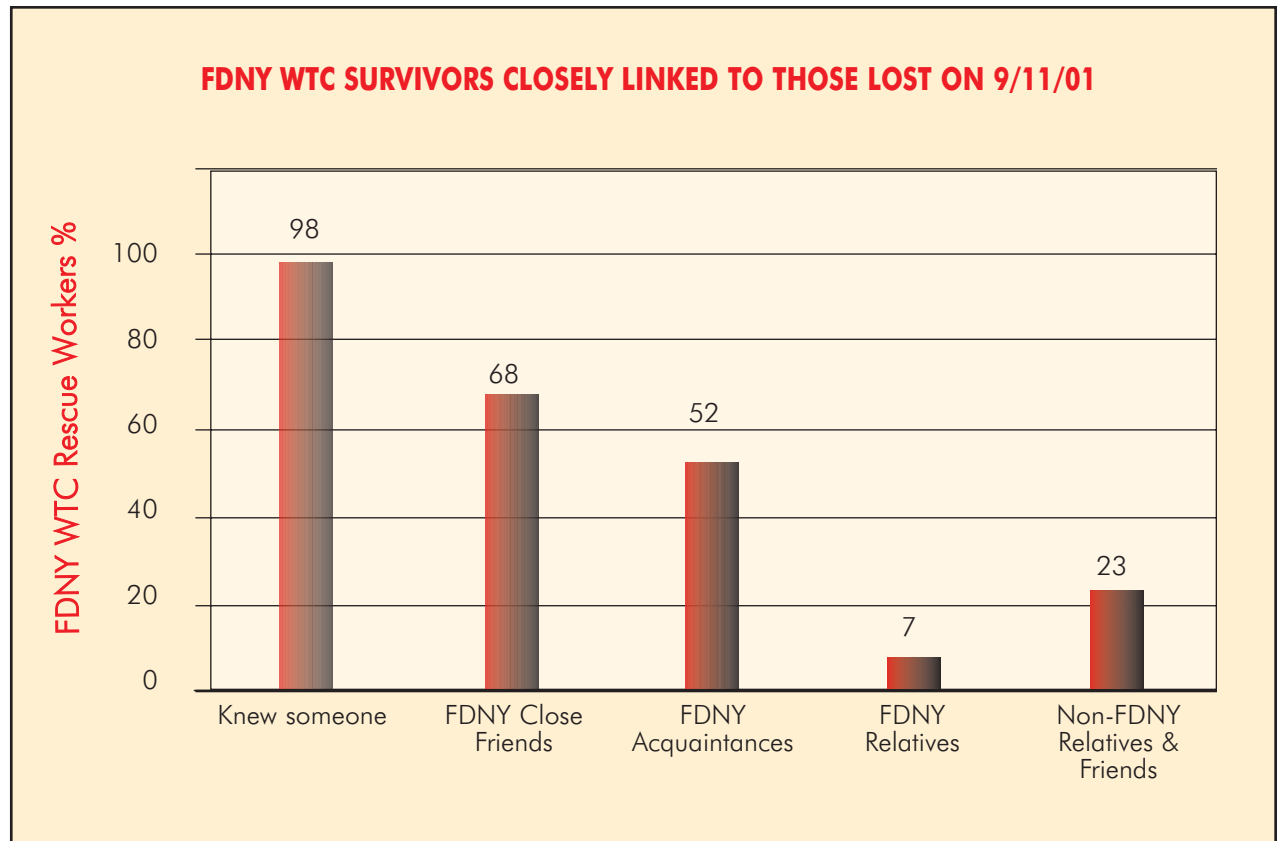
SECTION 3

Section 3 of this report will discuss the psychological effects of working at the WTC site by examining self-reported data from our medical questionnaires.



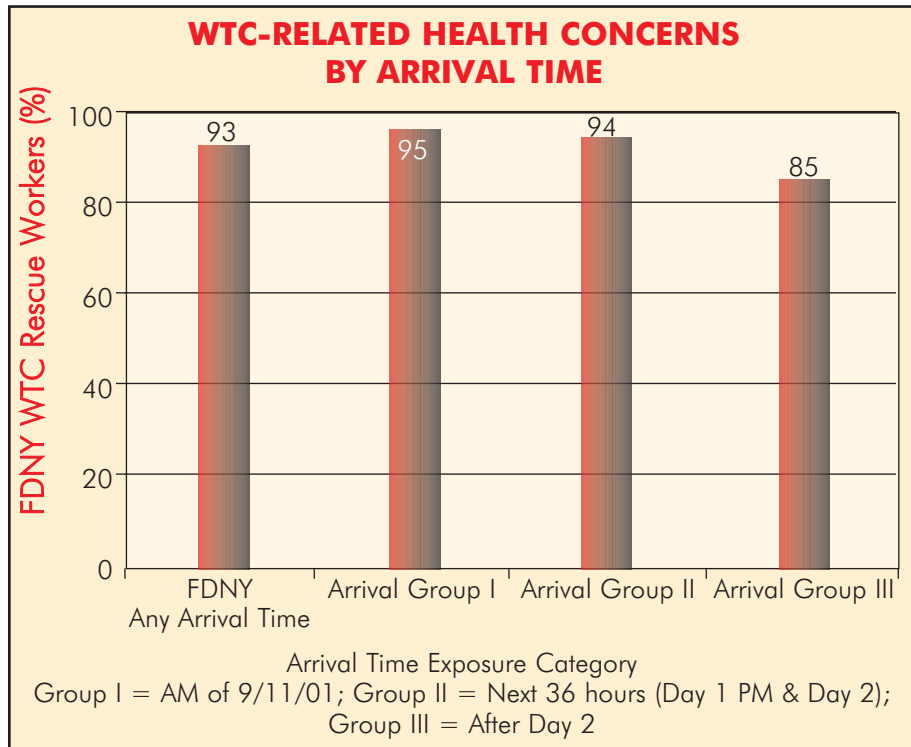
The majority of FDNY members reported close ties to those lost at the WTC site.¹

- 98% of FDNY rescue workers lost someone they knew on 9/11/01
- 68% lost FDNY close friends
- 52% lost FDNY acquaintances
- 7% lost FDNY relatives
- 23% lost non-FDNY relatives and close friends



An overwhelming 98% of FDNY rescue workers knew at least one person who died at the WTC and many knew more than one person. In addition to being members of the FDNY extended family, the 343 rescue workers we lost that tragic day held multiple, diverse roles as spouses, fiancés, significant others, fathers, sons, brothers, friends and coworkers. The close bonds formed between those members who sacrificed their lives and those who survived help to explain the extent of our members’ suffering in the aftermath of 9/11. Despite the loss of their loved ones, our members dedicated themselves to continuing the search for the missing. Each anniversary, memories and unexpected reports of new identifications can serve to rekindle these emotions.

Early responders expressed the greatest health concerns after working at the WTC site.²



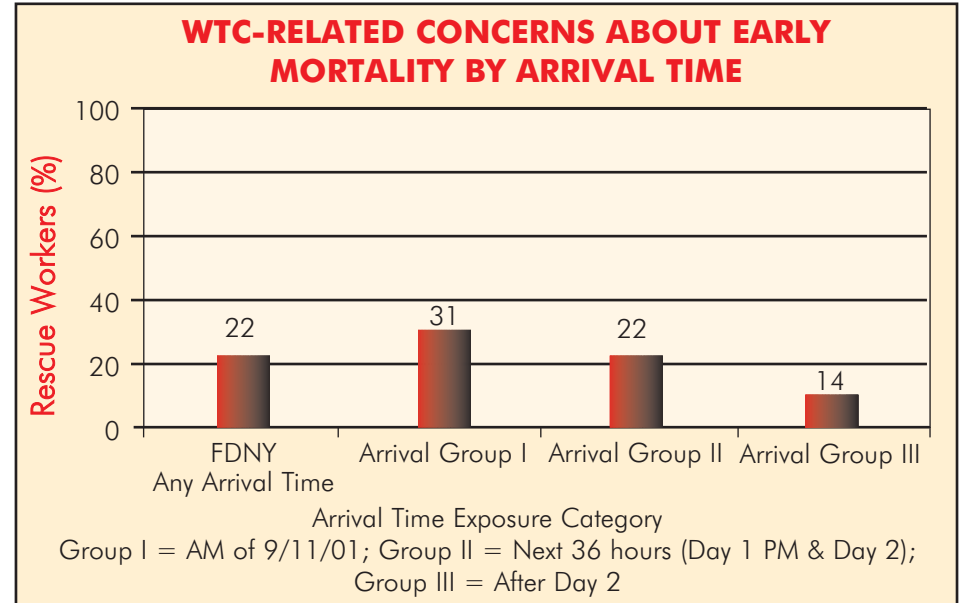
Year 1 Post-WTC

- **All FDNY Rescue Workers** 93% had WTC-related health concerns
- **Arrival Group I** 95% had health concerns
- **Arrival Group II** 94% had health concerns
- **Arrival Group III** 85% had health concerns

WTC-related health concerns are seen in all response groups, regardless of arrival time. Clearly, those groups arriving on Day 1 or Day 2 had significant concerns about their health when faced with air quality issues. These groups also personally witnessed the largest amount of injury, death and destruction.

²Data analysis collected from questionnaires completed by FDNY rescue workers Oct. 2001-Oct. 2002.

Concerns about early mortality among FDNY rescue workers are strongly correlated to arrival time at WTC.³



Years 2-4 Post-WTC

- **All FDNY Rescue Workers** 22% had early mortality concerns
- **Arrival Group I** 31% had early mortality concerns
- **Arrival Group II** 22% had early mortality concerns
- **Arrival Group III** 14% had early mortality concerns

In the mental health questionnaire, 22% of FDNY rescue workers answered that they were “feeling as if (their) future will be cut short” by WTC exposures and related illnesses. These results are not surprising, as those members present before and during the collapse of the towers personally experienced the prospect of death, witnessed the sudden loss of coworkers and inhaled the most dust. We know that regardless of arrival time, all FDNY rescue workers suffered varying inhalation exposures and were in proximity to those who perished. Concerns about early mortality among our FDNY rescue workers are to be expected. As can be seen in the next group of figures, these exposures and concerns translate into high rates for symptoms that are common in grief reactions, post-traumatic stress disorder (PTSD) and depression.

³Data analysis collected from questionnaires completed by FDNY rescue workers Oct. 2002-Aug. 2005.

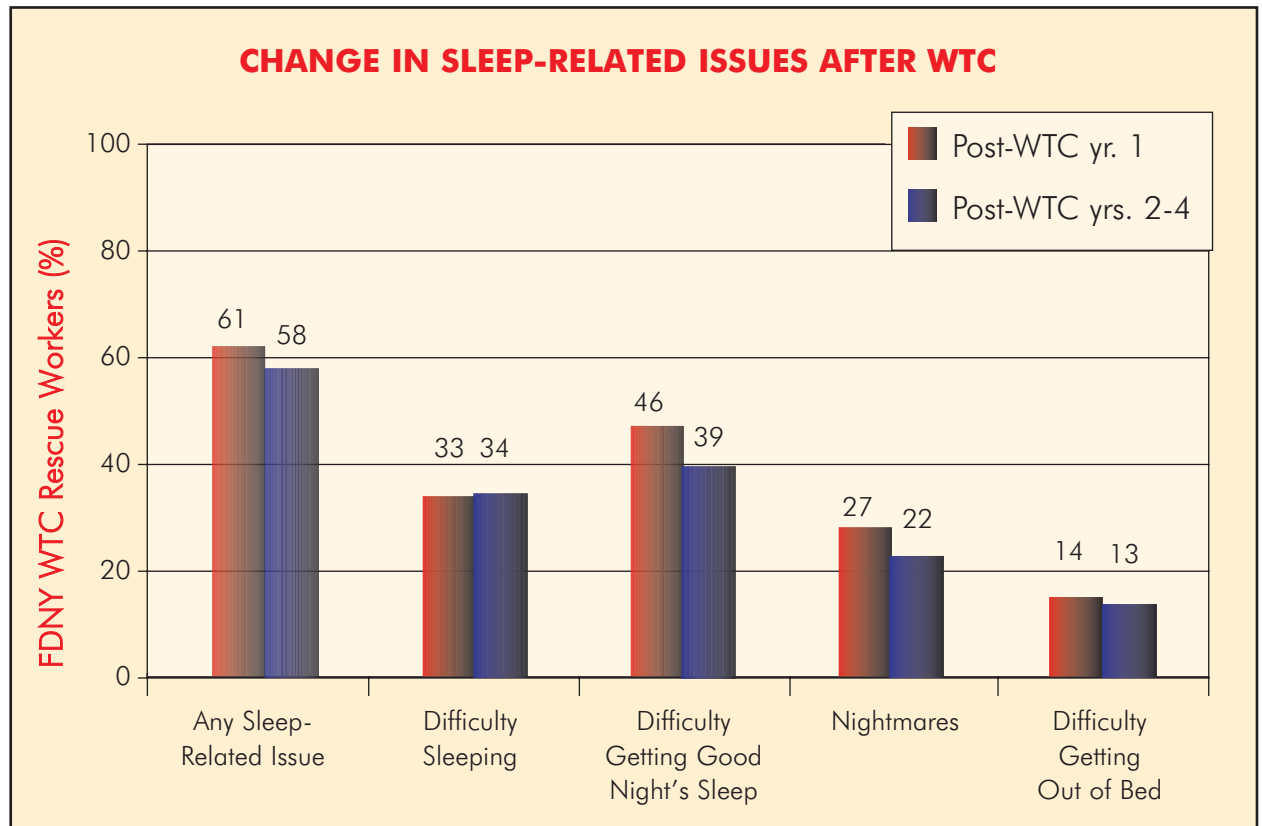
Year 1 Post-WTC

- 61% of all FDNY WTC rescue workers reported having sleep-related problems
- 33% had trouble sleeping
- 46% had trouble getting a good night's sleep
- 27% had nightmares
- 14% had difficulty getting out of bed

Years 2-4 Post-WTC

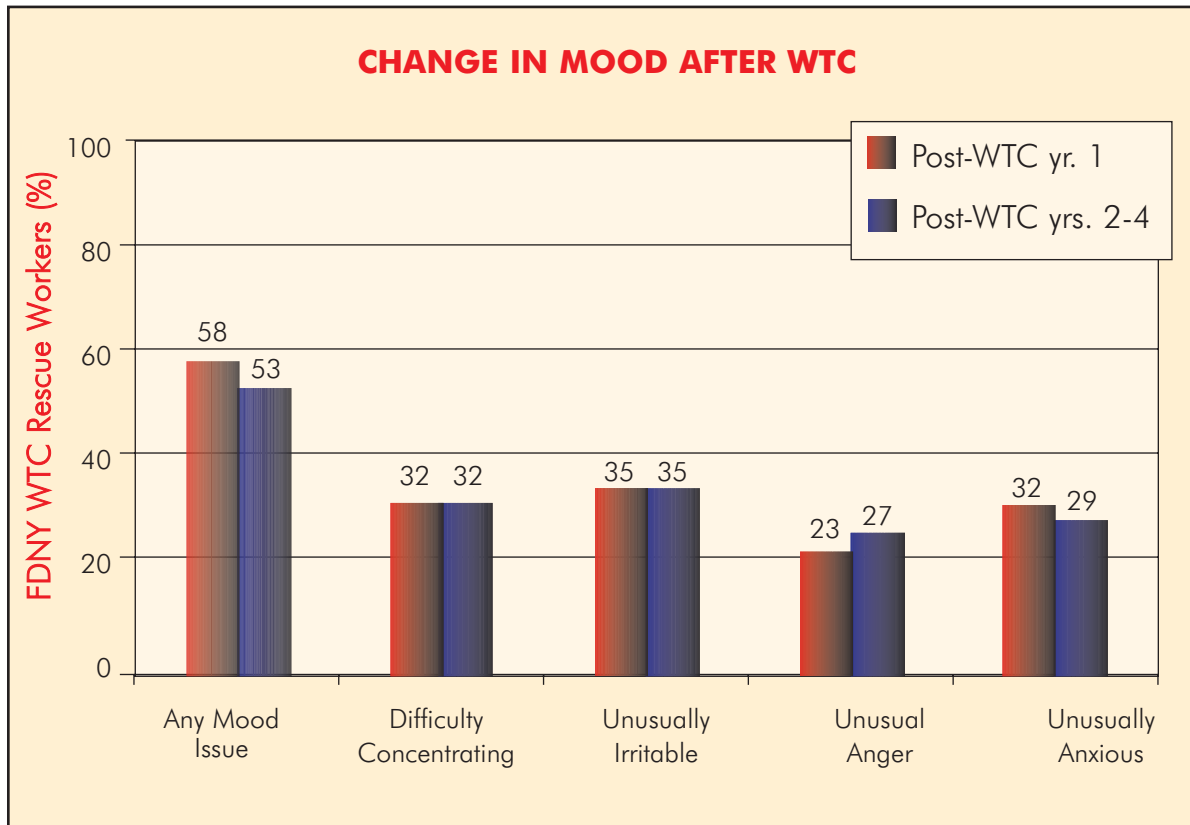
- 58% had sleep-related problems
- 34% had difficulty sleeping
- 39% had trouble getting a good night's sleep
- 22% had nightmares
- 13% had difficulty getting out of bed

FDNY rescue workers self-reported numerous sleep issues in the first four years after working at the WTC site.⁴



Sleep disturbances were prominent in the first year after 9/11/01 and persisted in years 2 through 4. This could be related to changes in mood and anxiety after the WTC attacks, nightmares, the amount of time spent working at the WTC or changes in exercise patterns. Our results indicate that although healing is occurring, these symptoms persist.

Mood changes that occurred after working at the WTC have endured for more than 4 years.⁵



Self-reported persistent changes in concentration, irritability and anger are widespread, with more than half of our WTC-exposed work force exhibiting at least one of these symptoms. Again, this shows long-term psychological effects from the WTC attacks and that continued attention to mental health is needed. Continued usage of counseling services at CSU indicates that this need remains strong 4 years later. (For a list of CSU locations and phone numbers, please see page 62.)

Year 1 Post-WTC

- 58% of all FDNY WTC rescue workers report a change in mood
- 32% had difficulty concentrating
- 35% were unusually irritable
- 23% had unusual anger
- 32% were unusually anxious

Years 2-4 Post-WTC

- 53% report a change in mood
- 32% had difficulty concentrating
- 35% were unusually irritable
- 27% had unusual anger
- 29% were unusually anxious

⁵Data analysis collected from questionnaires completed by FDNY rescue workers Oct. 2001-Aug. 2005.

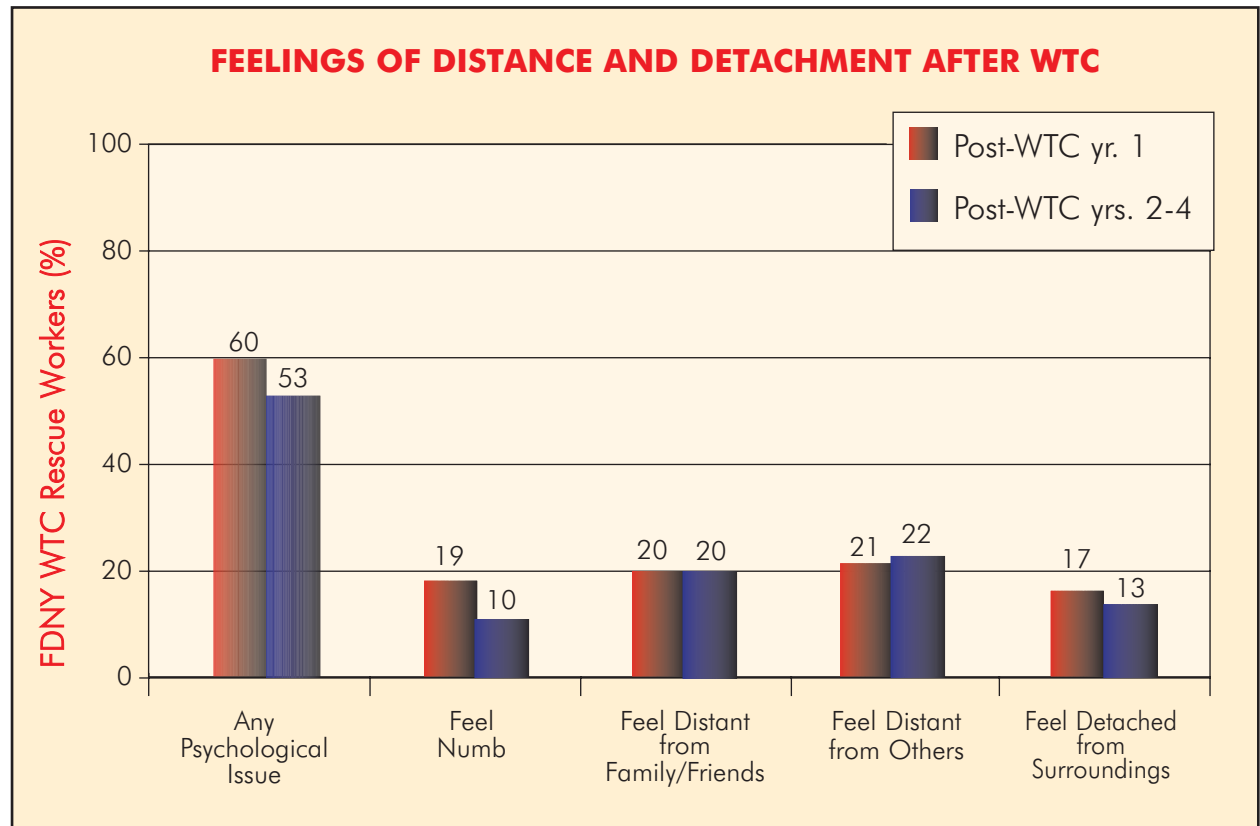
Year 1 Post-WTC

- 60% of FDNY rescue workers report psychological issues (including re-experience issues)
- 19% felt numb
- 20% felt distant from friends or family
- 21% felt distant from others
- 17% felt detached from surroundings

Years 2-4 Post-WTC

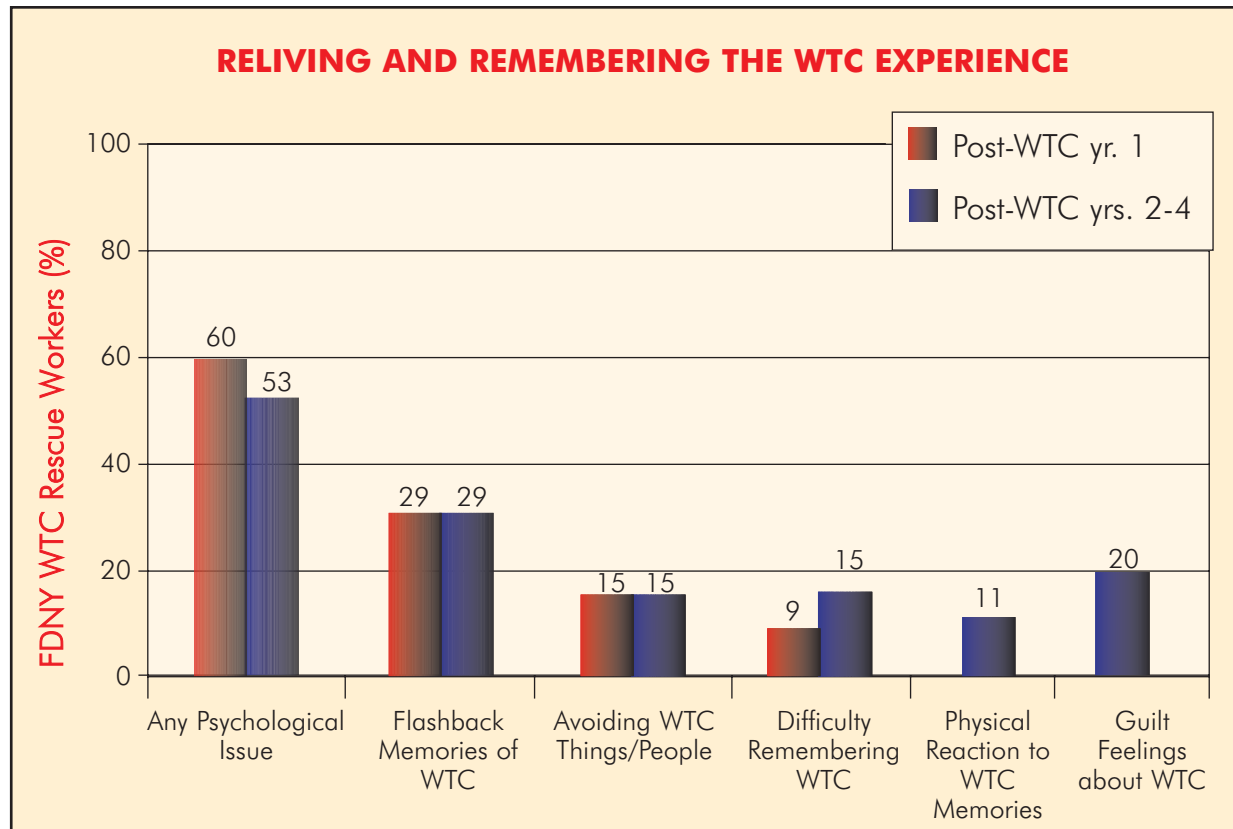
- 53% report psychological issues (including re-experience issues)
- 10% felt numb
- 20% felt distant from friends or family
- 22% felt distant from others
- 13% felt detached from surroundings

Many WTC rescue workers continue to feel distant and detached after 9/11/01.⁶



Many members showed persistent behavioral changes and complex emotional reactions consistent with a stress-induced response to the disaster. Feeling numb, distant or detached are frequent findings in those suffering from PTSD, a psychiatric disorder that occurs after exposure to a terrifying event in which serious physical harm occurred or was threatened (as in the case of the WTC attacks). PTSD may occur immediately or at a later time and may persist. Effective treatment strategies involving social support, counseling and/or medications are available at FDNY-CSU. It is unclear why some people are more prone to developing PTSD than others, but the process likely involves complex genetic, physical and social factors that are unique to each individual.

Nearly 30% of FDNY rescue workers continue to have flashbacks from the WTC experience.⁷



With nearly one in three FDNY WTC rescue workers still having flashbacks, clearly, there are still many residual emotional reactions from that day. This, too, may be a sign of PTSD. Complicating matters, the stressful situations encountered in the day-to-day rescue work that our members perform can trigger or exacerbate WTC memories and stress reactions long after 9/11/01. Symptoms related to memories of 9/11 and flashbacks from the event continue to demonstrate persistent WTC-related grief reactions, PTSD and depression in our members. Guilt can take different forms; this includes guilt for those who were not present during the collapse and survivor guilt. In their struggle to hold on to those they lost, our members are clearly retaining painful memories. They are learning how best to identify and manage the residual stress associated with the WTC memories, while holding on to the need to “never forget.”

Year 1 Post-WTC

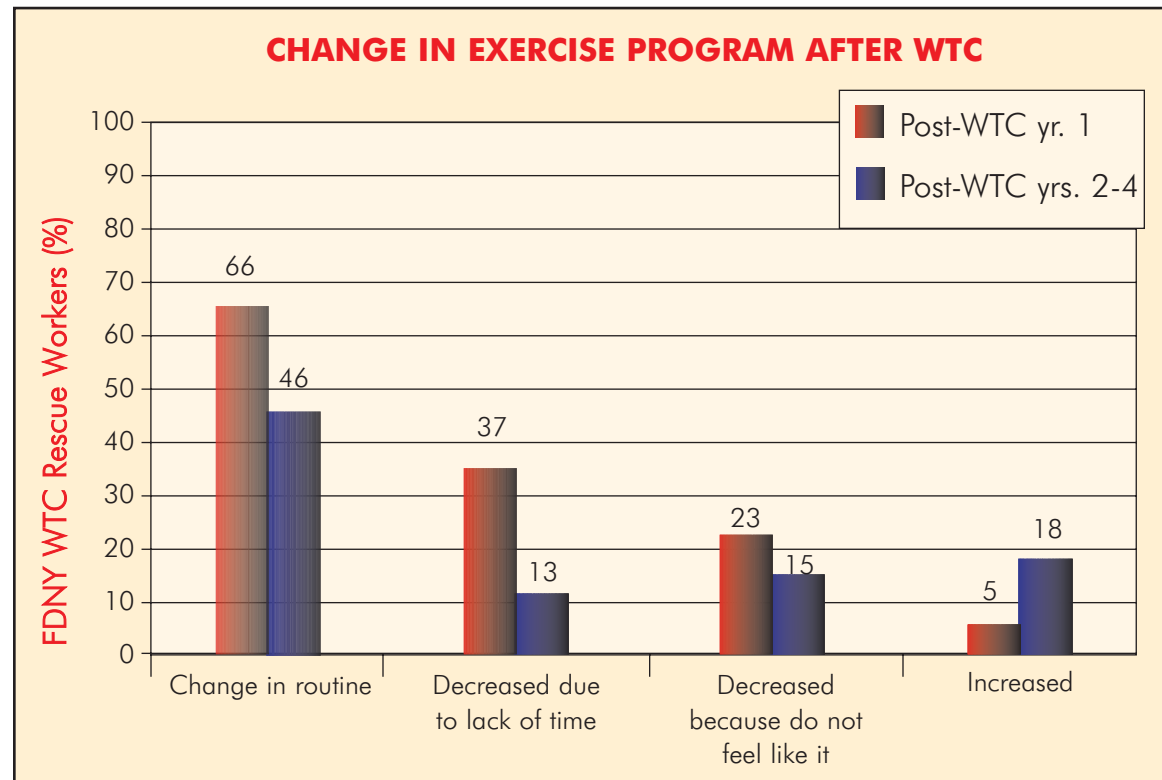
- 60% of FDNY rescue workers report psychological issues (including detachment issues)
- 29% had flashbacks of WTC
- 15% avoided things or people associated with WTC
- 9% had difficulty remembering the WTC

Years 2-4 Post-WTC

- 53% report psychological issues (including detachment issues)
- 29% had flashbacks of WTC
- 15% avoided things or people associated with WTC
- 15% had difficulty remembering the WTC
- 11% had physical reactions to WTC memories
- 20% had guilt feelings about WTC

⁷Data analysis collected from questionnaires completed by FDNY rescue workers Oct. 2001-Aug. 2005.

In the first year after 9/11/01, the majority of our members exercised less than they did before the WTC attacks. However, these trends are reversing for a variety of reasons.⁸



Given the physical demands of the job, we always expect to find most FDNY rescue workers engaged in an active lifestyle. As our members are aware, exercise provides an excellent outlet for stress reduction. However, in the first year following the WTC attacks, exercise routines were decreased in more than half of the FDNY rescue workers. This may have complicated the ability to handle stress. The increased activity level between year 1 and years 2-4 reflects increased time available for exercise and, hopefully, the improving state of health (physical and mental) of our rescue workers.

Year 1 Post-WTC

- 66% of FDNY rescue workers reported a change in exercise program post-WTC
- 37% exercised less due to lack of time
- 23% exercised less because they did not feel like it
- 5% exercised more

Years 2-4 Post-WTC

- 46% reported no change in exercise compared to pre-WTC routine
- 13% exercised less due to lack of time
- 15% exercised less because they did not feel like it
- 18% exercised more

SECTION 4

FDNY RETIREMENT AND DISABILITY DATA

- FDNY Retirements and Years of Service ➤
- Disability Pensions Received ◆
- Number of Pulmonary Cases Under the Lung Bill ➤
- Number of Permanent Psychological Impairment Cases ➤
- Number of Cardiac Cases Under the Heart Bill ➤
- Number of Cancer Cases ➤
- NYCERS EMS "3/4" Disability Pension Applications Approved ➤

343 flag-bearing FDNY members proudly march up 5th Avenue, passing the Metropolitan Museum of Art in the March 17, 2002, St. Patrick's Day Parade.



FDNY RETIREMENT AND DISABILITY DATA

SECTION 4

In the 2 years following 9/11/01, there was an unprecedented number of FDNY Firefighter retirements.

FDNY Retirements and Years of Service

DATE	EMS	FIRE	FIRE (>20 YRS.)	FIRE (>20 YRS.) Percent
9/11/99 to 9/10/00	250	534	356	67
9/11/00 to 9/10/01	269	554	352	64
9/11/01 to 9/10/02	157	1216	755	62
9/11/02 to 9/10/03	199	1201	866	72
9/11/03 to 9/10/04	139	573	318	55
9/11/04 to 9/10/05	136	603	265	44
9/11/05 to 9/10/06	108	621	315	51

In years pre-9/11 (9/11/99 to 9/10/01), there was an average of 544 annual Firefighter retirements. In the first two years post-WTC, 1216 and 1201 Firefighters retired annually. In the next three years, the average number of retirees returned to pre-WTC values and the work force now is younger with fewer members having 20 or more years of service. One third of the work force retired between 9/11/01 and 9/10/06. The number of EMS retirements has not increased after 9/11/01.

Exposed retirees may represent the most severely

affected of the more than 1500 Firefighters diagnosed with respiratory disease. From 2002-2006, 728 members qualified for permanent disability benefits under the "Lung Bill." Many of those who retired were our senior and most respected members. These figures also highlight the need to continue our outreach to FDNY retired rescue workers to make certain they continue in our medical monitoring and treatment programs. Only with early diagnosis and treatment can we hope to reduce the potential long-term impact of this exposure in later retirement years.

The traumatic events of 9/11 affected both the physical and mental health of our members. This resulted in an unprecedented number of Firefighter retirements in the two years following 9/11, as well as an increased number of disability pensions granted by the FDNY.



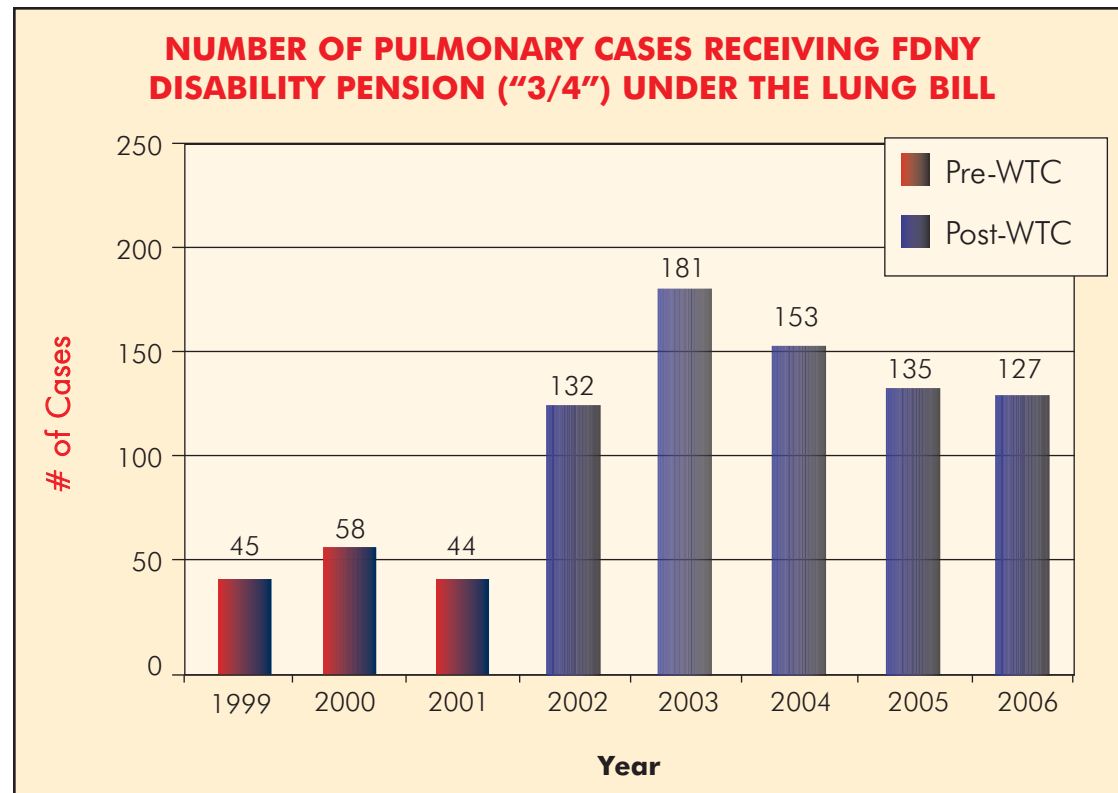
Pre-WTC

➤ An average of 49 FDNY Firefighters and Fire Officers collect disability pensions for lung problems annually

Post-WTC

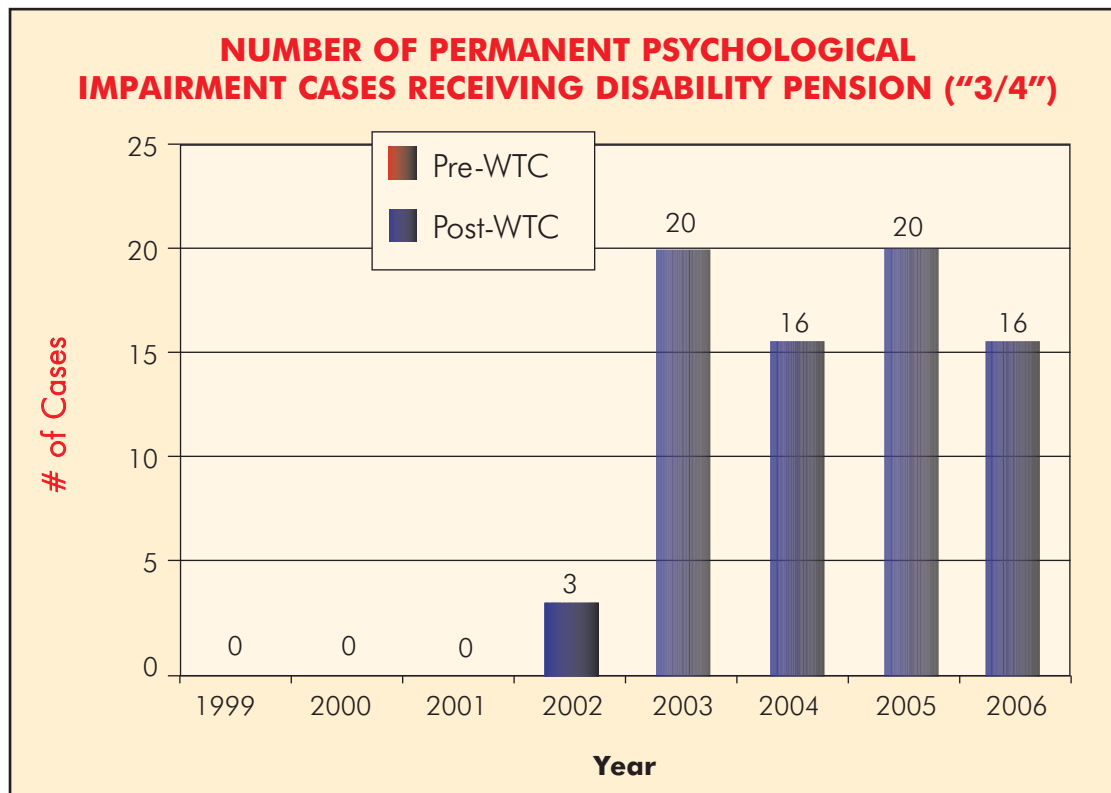
➤ An average of 146 FDNY Firefighters and Fire Officers collect disability pensions for lung problems annually

The persistent increase in disability pensions granted under the Lung Bill reflects WTC exposure and related disease.¹



Due to the nature of the profession, Firefighters inevitably are exposed to smoke and potentially at risk for severe respiratory problems. Long before the WTC attacks, Firefighters have had to turn to the FDNY disability pension system when lung problems interfered with occupational demands. The provisions of the Lung Bill recognize the hazards of firefighting, with its recurrent exposures despite protective gear and SCBA. This system provides disability pensions only after a rigorous, objective evaluation of pulmonary function. The dramatic increase noted above after 2001 is strongly tied to the WTC-related respiratory symptoms and loss of pulmonary function described previously. From 2002 to 2006, 728 members qualified for permanent disability benefits under the Lung Bill.

In this resilient population, certain members developed permanent psychological impairments and were granted service-connected disability pensions for these problems.²



With rare exceptions, FDNY did not provide disability pensions for stress-related cases until after the events of 9/11/01. This began in acknowledgement of the harrowing events experienced by FDNY-WTC Firefighters and Fire Officers, including the loss of friends and coworkers and personally witnessing vast amounts of death and destruction. From 2002 to 2006, 75 members qualified for permanent disability benefits due to psychological impairment.

Pre-WTC

- No cases of permanent psychological impairment received disability pension

Post-WTC

- An average of 15 annual permanent psychological impairment cases receive disability pension

² Data analysis collected from FDNY Fire pension records.

SECTION 4 • FDNY RETIREMENT AND DISABILITY DATA

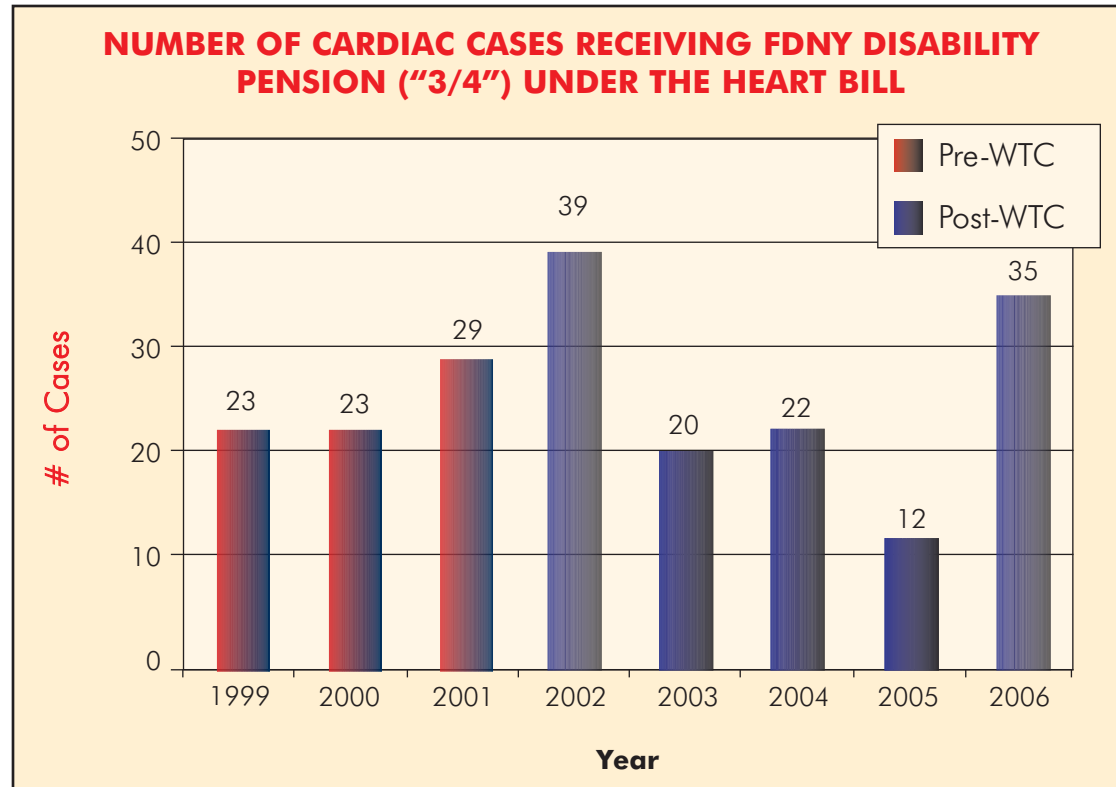
Pre-WTC

- An average of 25 FDNY Firefighters and Fire Officers collect disability pensions for cardiac problems annually

Post-WTC

- An average of 26 FDNY Firefighters and Fire Officers collect disability pensions for cardiac problems annually

Following the WTC attacks, the average number of cardiac cases receiving FDNY disability pension under the Heart Bill has remained unchanged, but there were spikes in years 2002 and 2006 that we are studying more closely.³



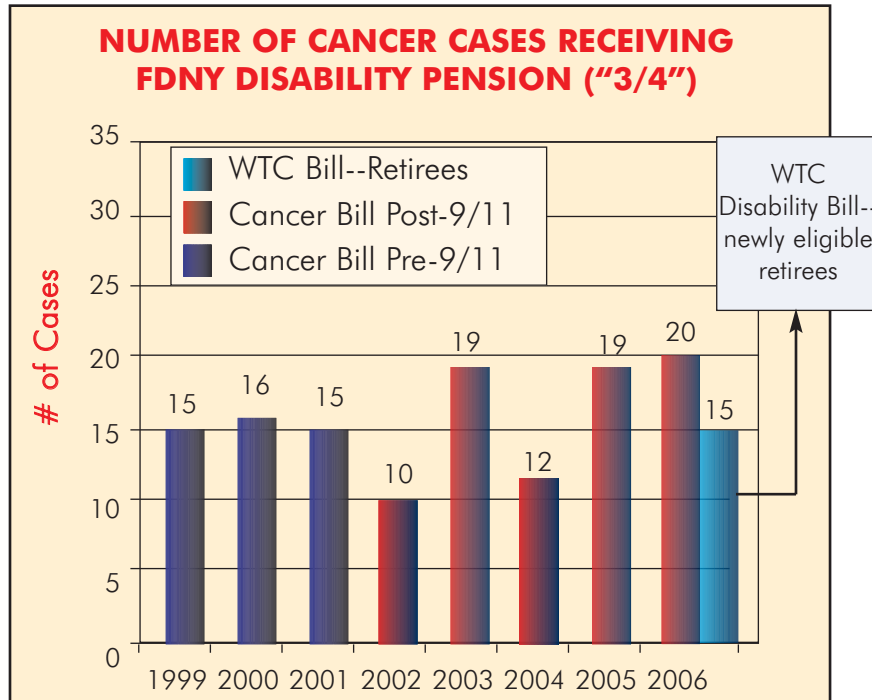
Under the provisions of the Heart Bill, FDNY disability pensions are granted only for coronary artery disease. Members with other cardiac illness, such as cardiomyopathy and cardiac rhythm problems, currently do not fall under the provisions of the Heart Bill. WTC monitoring will continue to evaluate members to look for patterns of cardiac health after this exposure. At periodic medical evaluations, FDNY-BHS continues to stress efforts to modify cardiac risk factors (obesity, sedentary lifestyles, elevated cholesterol levels, smoking, etc.). In 2002, there was a spike in numbers, with a return to pre-WTC levels in 2003-2004. Members with known cardiac problems may have deferred retirement for one year to help with the rescue and recovery effort post-WTC. Numbers decreased in 2005 and then increased in 2006. We continue to study this issue.

FDNY-BHS is closely monitoring late onset diseases, such as cancers, to look for emerging patterns post-WTC.⁴

The Cancer Bill (1994) is a presumptive bill that was enacted in recognition of Firefighters' daily occupational exposures to known carcinogens. The WTC Bill (June 2005) is also a presumptive bill that was enacted in recognition of WTC exposures and encompasses many ailments, including disabilities related to the lungs, upper respiratory system and cancer. The Cancer Bill is available only to active members who have a disabling cancer. The WTC Bill is available to any active or retired FDNY member who was on active duty during the rescue and recovery effort and then developed a covered disabling condition. In 2006, Firefighters first became eligible for the WTC Bill.

The number of members retiring due to cancer has been high for a work force this size, both pre- and post-9/11/01, reflecting the exposures to smoke and toxins consistently experienced by our members. In 2006, there was a marked increase in the number of pensions granted due to cancer; however, this is the first year of broadened eligibility due to the WTC Bill and a significant portion of the increase appears to be due to previously ineligible retirees who now are eligible. Of the 15 WTC Bill cancer pensions granted in 2006, more than two-thirds were awarded to retired members seeking reclassification of their retirement status. Before 2006, these reclassifications were not possible and cancers among retirees were not tracked. Very recently, these data have become available to us (June 2007) and it is too soon to comment on patterns or types of cancers. We are in the process of intensive investigation and will continue to obtain information from active members and retirees before finalizing our statistical analyses. A full report will be forthcoming in the near future.

Cancer is a late-emerging disease that may take years or even decades to manifest in an individual, highlighting the need for FDNY rescue workers to continue in this monitoring program. This is especially true of our retired members, who--until now--we have had no way to monitor following prior exposures. The federal funding provided for the FDNY WTC Program has created the opportunity for retired members to continue their monitoring for late-emerging diseases. This is the only way we can determine if cancer post-WTC has increased and the only way to provide early diagnoses, which can improve outcomes. Also, for those few who smoke, we highly recommend participation in our free WTC Tobacco Cessation program to reduce future additional carcinogenic exposures. In prior environmental/occupational disasters, the highest cancer rates have been in smokers.



Pre-WTC

- An average of 15 FDNY Firefighters and Fire Officers collect disability pensions due to cancer annually

Post-WTC

- An average of 16 FDNY Firefighters and Fire Officers collect disability pensions due to cancer annually
- In 2006, there were an additional 15 cases due to newly eligible retirees under the WTC Bill

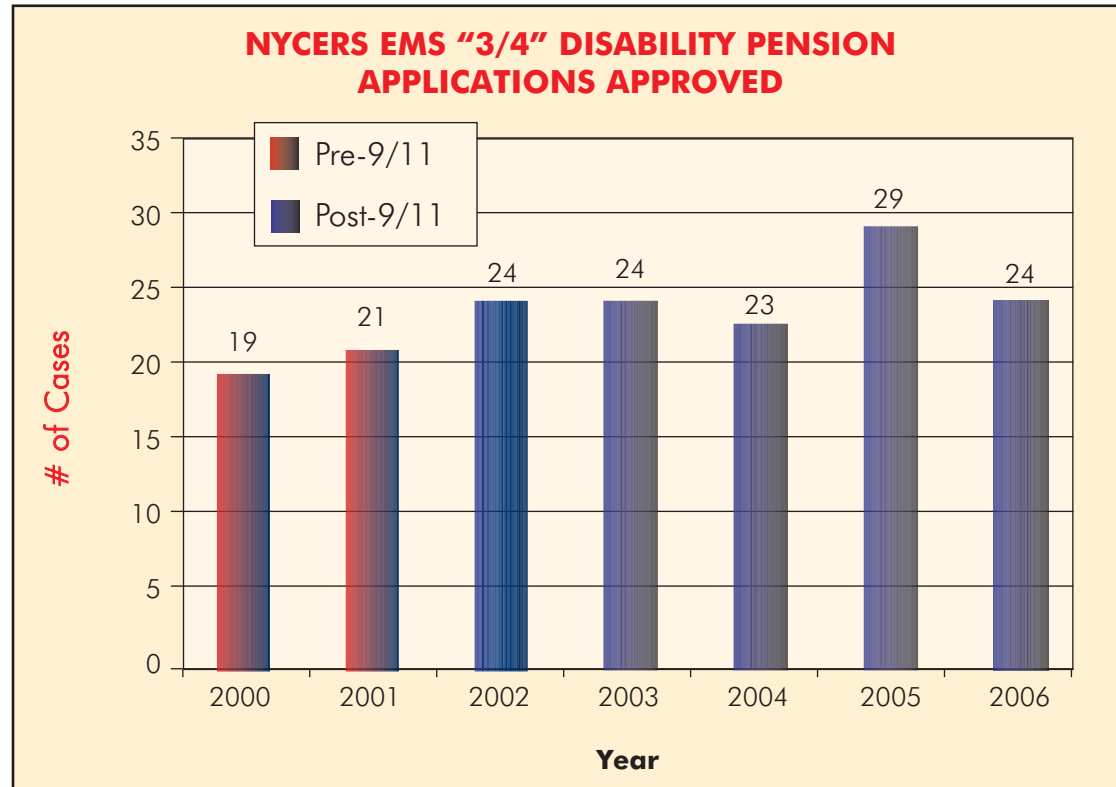
⁴Data analysis collected from FDNY Fire pension records.

Pre-WTC

➤ An average of 20 EMS personnel collect “3/4” disability pensions annually

Post-WTC

➤ An average of 25 EMS personnel collect “3/4” disability pensions annually. 9 EMS personnel collect “3/4” disability pensions under the WTC Bill



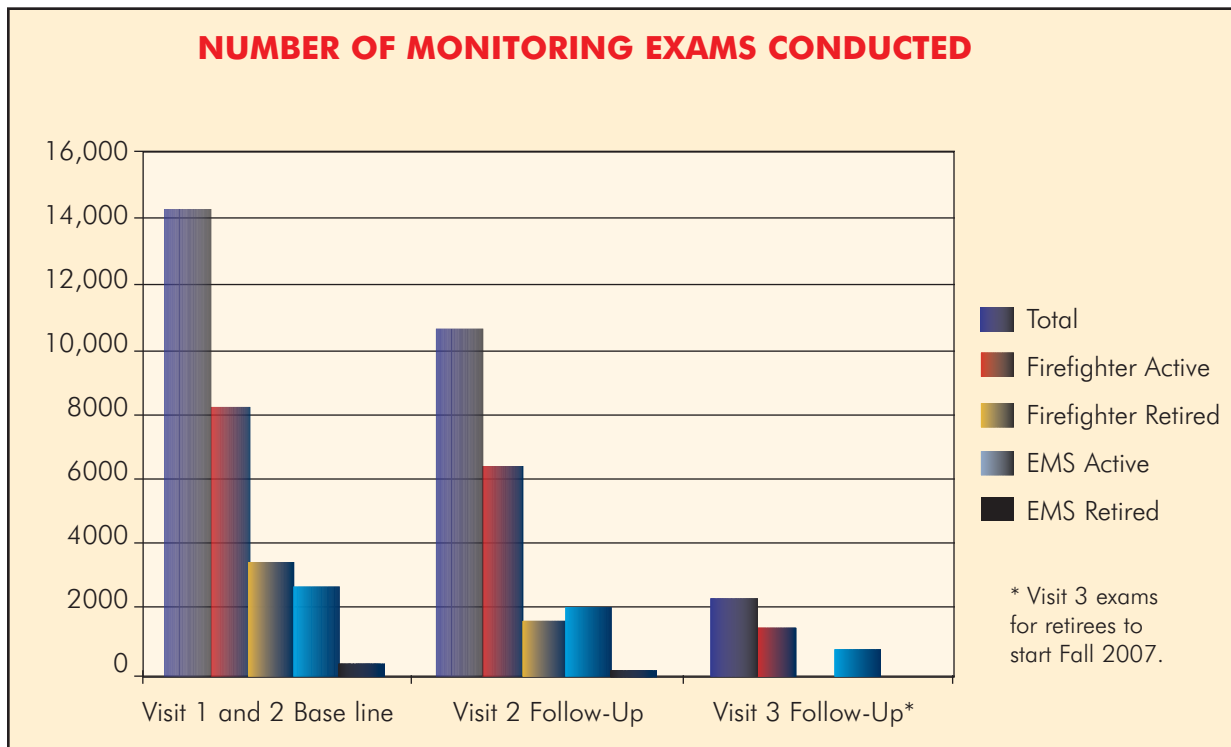
EMS personnel collect disability pensions through New York City Employees’ Retirement System (NYCERS). Like the FDNY system for Firefighters, disability pensions for EMS personnel are approved only after rigorous, objective health evaluations have been reviewed by an independent board. The numbers in the above graph include disability pensions collected for respiratory ailments, permanent psychological impairment and disabling cancers, as well as pensions collected under the Heart Bill and, beginning in 2006, the WTC Bill. Prior to 2006, disability pensions from WTC-related injuries and illnesses were not distinguished from non-WTC causes. Between 1/1/06 and 7/30/07, 9 EMS personnel were granted pensions under the WTC Bill. NYCERS could not provide us with diagnoses due to confidentiality issues, but of these 9 cases, FDNY-BHS had diagnosed 4 with asthma, 2 with sarcoidosis, 1 with cancer, 1 with PTSD and 1 with both asthma and PTSD.

SECTION 5

More than five years after the attack, the Fire Department's WTC Program continues its commitment to providing our members with the best monitoring and treatment programs possible.

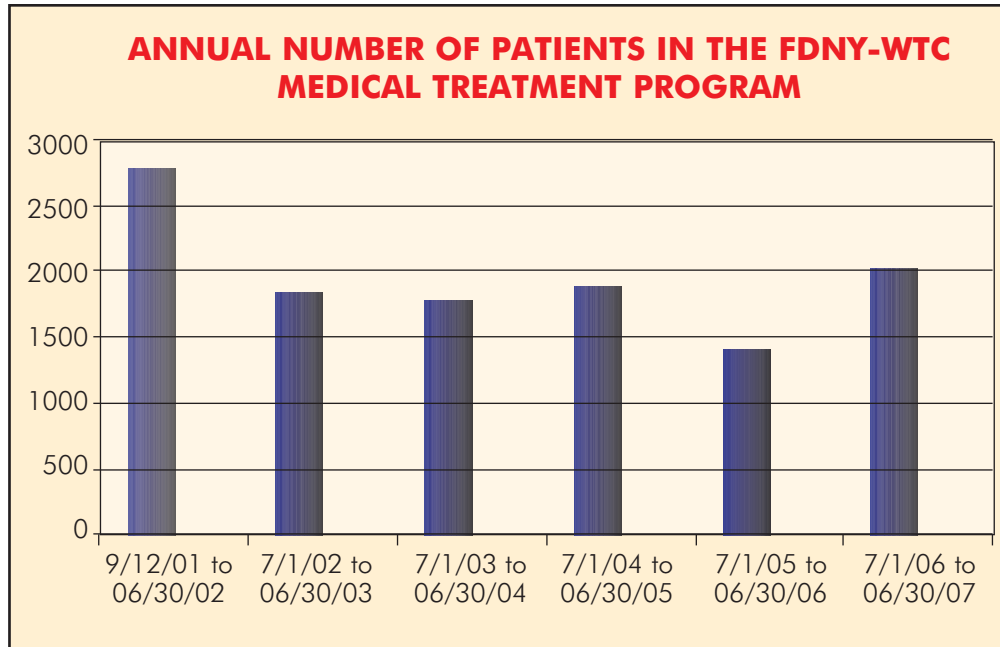
➤ 14,319 members have participated in FDNY-WTC monitoring

Monitoring Program Total Enrollment: 14,319 (10/01 to 06/30/07)¹



To date, 14,319 members participate in the FDNY WTC Program. WTC medical monitoring exams continue to be provided every 12-18 months to every active member (Fire and EMS) who served at any WTC site. This exam is part of the regular periodic company medical. As of April 30, 2007, 10,415 incumbents had received an initial monitoring exam and 8687 had received at least one follow-up monitoring exam (83% retention rate). Visit 3 follow-up monitoring exams began October 5, 2006, and the number of members receiving these exams will rise. For the first time in FDNY history, we have included retirees in this post-exposure program. In the first six months after 9/11/01, more than 1100 retirees participated in the WTC Monitoring and Treatment Program. As of April 30, 2007, this has expanded to include 3904 retirees who have received an initial monitoring exam and 1898 who have received at least one follow-up monitoring exam (49% retention rate). To improve our ability to schedule exams for retirees, we will be starting an intensive phone outreach campaign shortly after the sixth-year anniversary of the WTC attacks in September 2007. Participation in the monitoring program is a requirement to obtain free treatment and medication.

**SECTION 5 • FDNY-WORLD TRADE CENTER MEDICAL TREATMENT POST-9/11/01
THIS PROGRAM INCLUDES FIRE AND EMS (ACTIVE AND RETIRED).**



Note: The above chart counts each patient only once in any given time range.

Immediately after 9/11/01, FDNY-BHS started a treatment program for WTC-related conditions. We were the first to describe the WTC Cough Syndrome and document that treatment was effective (*New England Journal of Medicine*, 2002). Between 9/12/01 and 6/30/07, we have seen 6465 patients at a total of 40,313 visits. In December 2006, FDNY-BHS expanded monitoring and treatment services for WTC-related physical and respiratory illnesses. Our primary care doctors have received specialized training and are available for initial treatment interventions. Referrals then can be made to our two in-house lung specialists with 75 appointments available weekly. More appointments can be added as needed. FDNY rescue workers at high exposure risk are offered chest CT imaging.

Recognizing that treatment has been effective, but costly for members and their unions, NIOSH recently has funded an FDNY no-cost prescription medication program for WTC-related conditions (respiratory, sinus, GERD, mental health). Since medications have been provided, there has been an increase in treatment visits. All FDNY WTC rescue workers (Fire and EMS, active and retired) who were at the WTC during the collapse/rescue/recovery effort (9/11/01 to 7/02) and have received a WTC medical monitoring exam at FDNY-BHS (anytime since 8/12/05), qualify for this program. Those meeting the above eligibility requirements already should have received instructions and a special FDNY WTC Program prescription card. Eligibility and contact information can be verified or an updated WTC medical monitoring exam can be scheduled for you. (See page 62 for further information.)



- ▶ 6465 members have participated in the FDNY-WTC treatment program for “WTC cough”

Tobacco Cessation Rates

- 47% of participants remained tobacco-free continuously for 3 months
- 36% remained tobacco-free for 6 months
- 33% remained tobacco-free for 12 months

Tobacco Cessation Program

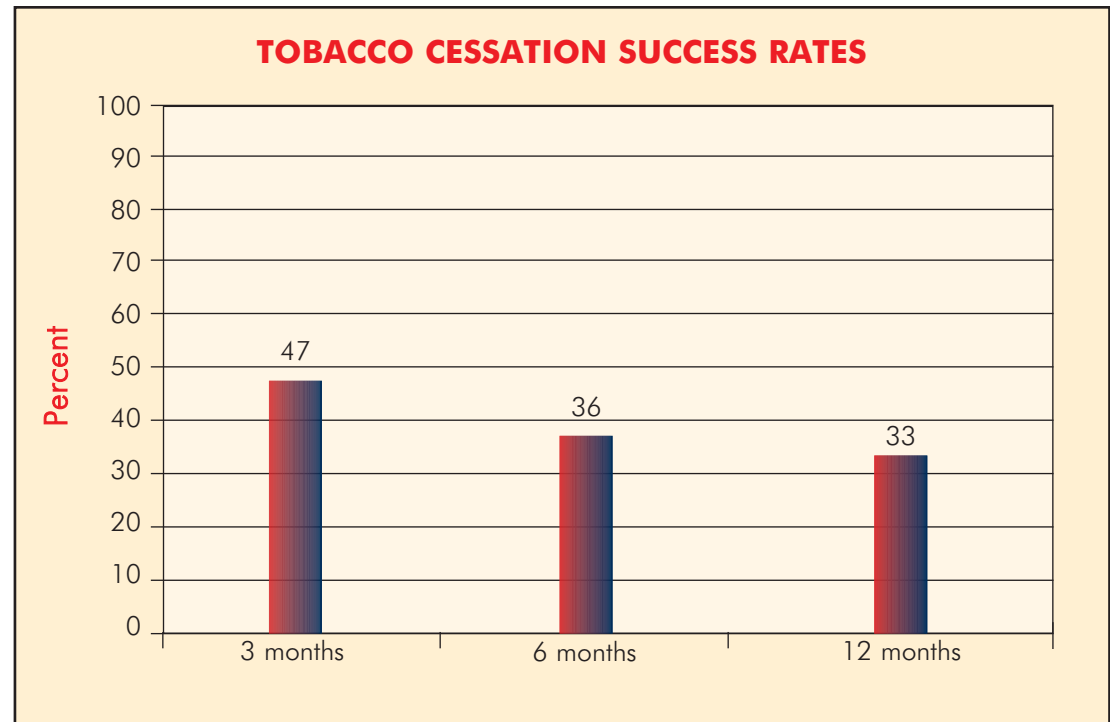
"I came to the program having failed in numerous attempts to quit smoking. I was a smoker many years before, but picked up the 'habit' on September 11, 2001. I never thought I'd become a full-time smoker as I never was one, but I guess the stress on that day and the weeks and months that followed gave me the excuse to keep smoking. Smoking definitely eased the anxiety, which I always found counterintuitive with nicotine being a stimulant, but I suppose by then I was addicted and more of my anxiety was coming from the withdrawal than from anything that 9/11 may have been contributing. I didn't know it then, but certainly know it now.

Thanks for helping to save my life."

Capt. Robert E. Higgins

FDNY Tobacco Cessation Program

Due to WTC-related respiratory illness and health concerns about cancer development, FDNY-BHS and FDNY-CSU started a free tobacco cessation program. Only 15% of our rescue workers use tobacco, but post-WTC stress caused tobacco use to increase.



Our studies have shown no link between current FDNY-WTC health findings and tobacco use. Because it is well-known that tobacco use results in an increased risk for the development of respiratory disease and cancer in asbestos workers, we felt it was prudent to offer our members a tobacco cessation program. "Tobacco Free with FDNY" is a free tobacco cessation program that provides counseling, nicotine replacement medication and other medications when necessary. More than 600 members (active, retirees and family members) have participated in our program. We are proud to have some of the highest reported tobacco cessation rates in the nation. In a study conducted on our first participants, 47%, 36% and 33% had stopped smoking for 3, 6 and 12 months, respectively. This program continues every Wednesday, alternating between FDNY-BHS and Fort Totten. (See page 62 for contact information.)

CSU Provides Counseling and Treatment

Prior to 9/11/01, the FDNY Counseling Services Unit (FDNY-CSU) consisted of 11 full-time counselors working at one location in Manhattan. This unit was responsible for counseling FDNY members on a broad range of issues, both personal and professional. FDNY-CSU also ran an outpatient substance abuse program and provided counseling during times of disaster, such as line-of-duty deaths (3 to 5 per year on average).

When catastrophe struck on 9/11/01, we realized that rapid expansion was needed to provide assistance to our members. Recognizing early on the need for an extensive network of counseling and support groups, we acted quickly by tapping into counselors from two partner organizations--the International Association of Fire Fighters (IAFF) and the National Fallen Firefighters Foundation (NFFF), who rushed to provide assistance. We established Debriefing Groups at the WTC site from September 11, 2001, through June 8, 2002, to support and provide crisis counseling to those workers involved in the recovery effort. Post-WTC Trauma Groups were available, as needed, at FDNY-CSU locations. We offered extended counseling services at additional FDNY-CSU offices located in members' communities.

Two weeks following 9/11, FDNY-CSU units were established in Staten Island, Fort Totten (Queens) and later in Suffolk and Orange Counties. For a list of CSU site addresses and phone numbers, please refer to the panel on the right. These sites provided individual counseling and support groups for FDNY workers and families, as well as the family members of the deceased. We also provided services conducted by FDNY-CSU clinicians, trained outside mental health counselors and trained peer counselors at FDNY work locations. The

firehouses and EMS stations that were visited initially and provided with on-site counseling were those that had lost one or more of their members at the WTC site. As staffing increased, every work location was visited and counseling was offered.

The volume of members who sought help through the FDNY-CSU increased dramatically. From 9/11/01 through 2006, the utilization patterns for the FDNY-CSU showed a four- to five-fold increase. Pre-9/11, FDNY-CSU saw, on average, 50 new clients a month at its one site, compared with more than 260 per month post-9/11. To date, this pattern of activity has continued.

Annually, CSU continues to see nearly 3000 FDNY rescue workers (Fire and EMS, active and retired) and affected family members. New programs introduced by FDNY-CSU recognize the changing and varied needs of our members. These include the "Stay Connected" program for members and their families during transition to retirement.

FDNY-CSU provides services for families of the deceased, including various specialized bereavement groups for spouses, fiancées, significant others, siblings, parents and children. CSU worked with BHS to establish two newsletters: *The Link*, which addressed the specific needs of FDNY families who lost a loved one, and *Health Connections*, which focused on all of our FDNY members. Conferences and workshops were provided to focus on stress management, PTSD, chemical dependency, grief and bereavement and personal relationship communication. Families of the deceased were offered an array of services, including a Big Brother/Big Sister program sponsored jointly by CSU and the UFA/UFOA.

FDNY-CSU Locations

Manhattan Counseling Unit

251 Lafayette Street, 3rd Fl, NYC 10012
(212) 570-1693 (24-Hour Line)

Staten Island Counseling Unit

1688 Victory Boulevard
Staten Island, NY 10314
(718) 815-4111

Fort Totten Counseling Unit

Fort Totten Building 413A
Bayside, NY 11364
(718) 352-2140

Brentwood Counseling Unit

Liberty Project Center
Suffolk County Community College
Crooked Hill Road,
Brentwood, NY 11717
(631) 851-6888

Orange County Counseling Unit

2279 Goshen Turnpike
Middletown, NY 10941
(845) 695-1029

Substance Abuse Day-Treatment Program

594 Broadway, Suite 500
(212) 925-6671

FDNY Headquarters

9 MetroTech Center
Brooklyn, NY 11201-3857
(718) 999-1858
(718) 999-0088 (fax)

Medical Monitoring Examinations

FDNY Headquarters

9 MetroTech Center
Brooklyn, NY 11201-3857
(718) 999-1858
(718) 999-0088 (fax)

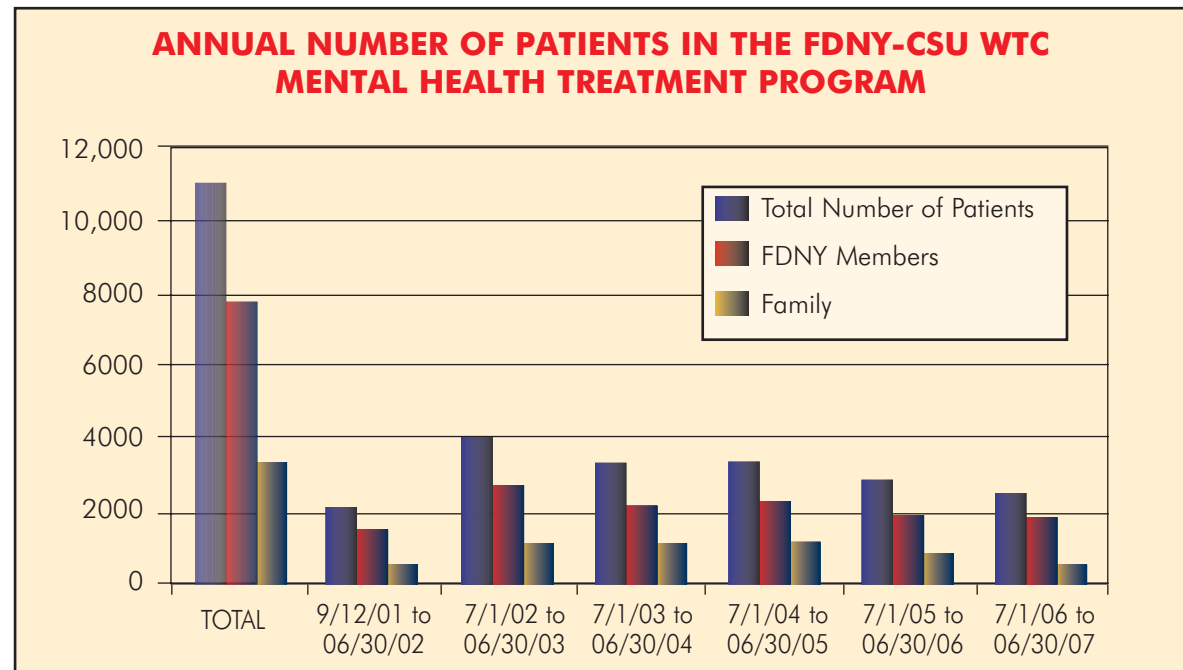
Tobacco Cessation Program

9 MetroTech Center
Brooklyn, NY 11201-3857
Fort Totten Building 413B
Bayside, NY 11364
(718) 999-1942

SECTION 5 • THE FDNY-WORLD TRADE CENTER MENTAL HEALTH TREATMENT PROGRAM POST-9/11/01

This program includes Fire and EMS (active or retired) and affected family members. Use of FDNY-CSU counseling services increased dramatically after 9/11/01 and has remained high, demonstrating the need for continued services.

- Pre-WTC CSU visits:
Annually, 500-600 FDNY rescue workers
- Post-WTC CSU visits:
Annually, approximately 2500 FDNY rescue workers



Many members who worked at the WTC site post-9/11 initially did not allow themselves the time to grieve for those lost, so mental health problems tended to surface later, once the search slowed and members had more time to process their emotions. Due to the nature of the job, FDNY members form tight-knit teams and typically were accustomed to self-management of problems or turning to their team members for advice prior to 9/11. CSU-trained peer counselors provide initial support and encourage members to seek professional counseling and treatment from trained mental health practitioners (social workers, psychologists and psychiatrists) at CSU or when needed through other organizations. Referrals to private practitioners were made for those clients as needed or when preferred. The increase in use of FDNY-CSU counseling services after the first year post-9/11 reflects a greater acceptance by our members of the need for more formal, structured counseling. The continued utilization of FDNY-CSU services in the years that followed indicates that members continue to seek services as they recognize the need for effective treatments. Between 9/12/01 and 6/30/07, there have been 157,406 visits to FDNY-CSU by 11,248 FDNY employees and family members. Pre-9/11, there were only 600 visits per year to FDNY-CSU. Free mental health medications now are available for those members (Fire and EMS, active and retired) with WTC-related conditions and a recent FDNY-WTC Medical monitoring exam.

SECTION 6

CONCLUSION

Appendix A Publication List ➤

Appendix B Wellness Self-Tests and Tips ➤

Postscript ➤

SECTION 6

CONCLUSION

"It's a no-brainer. If you care about yourself and your family, this is a chance to see about your condition, to prevent a condition from worsening or find out if anything has popped up."

Capt. Bill Butler

"This is a good program; I highly recommend it to other retirees. The evaluation was very extensive, thorough. For retirees with concerns about their future health, they should come down for this medical evaluation for their piece of mind and for their families, too. There may be unknowns popping up or some problems may show accelerated rate, so it's important to know what is going on. Everyone at BHS treated us professionally and in a caring manner."

Lt. Dennis O'Berg

The World Trade Center Medical Monitoring and Treatment Program is committed to monitoring, assessing and treating the immediate health effects that became evident shortly after the disaster; the long-term health effects that have become prevalent in the years since 9/11; and late-emerging diseases that may occur in the years that follow. This belief is shared by Mayor Bloomberg and the members of his WTC Health Panel, who have been strong advocates of federal resources to fully fund not only the FDNY WTC Program, but the Mount Sinai Consortium's WTC Medical Monitoring and Treatment Program for non-FDNY responders and the Bellevue Hospital Environmental Health Center Treatment Program.

This report has presented information on the health effects of 9/11, which confirms that the WTC exposure was unique and its effects are far-reaching and widespread among FDNY rescue workers. It is clear that exposures of FDNY personnel require a continued commitment to health monitoring and treatment.

Thankfully, for many, time and treatment have allowed medical and psychological problems to resolve or diminish in severity since that fateful day. Unfortunately, for others, illness persists. Some of these issues continue to present them-

selves throughout our work force (Fire and EMS, active and retired). Pulmonary function tests demonstrated an unprecedented decline in lung function in the year following September 11, 2001. Follow-up studies are in progress to determine the extent to which these declines have continued. Given the nature of the job, respiratory symptoms, such as shortness of breath, which may occur as a result of lung function loss, can impair our members' ability to function at work. Similarly, PTSD, depression and anxiety can cause serious problems, both at work and home.

The FDNY WTC Program has performed monitoring evaluations on more than 14,245 active and retired FDNY rescue workers. Identifying these problems through regular monitoring evaluations and providing treatment when needed, provide the best chance for preventing emphysema and pulmonary fibrosis and fighting cancer and other late-emerging diseases.

Treatment options can take different paths, including specialized procedures, such as chest CAT scans, cardiac stress tests and endoscopies. "Tobacco Free with FDNY" is a nationally renowned tobacco cessation program that can help those members who wish to "kick the habit." We urge our members to take advantage of this program. Although we did not find tobacco use

to be associated with WTC-related declines in pulmonary function or with increases in sarcoid, it is well-known that smoking increases the future risk of developing cardiopulmonary diseases and cancer. As of December 1, 2006, the FDNY WTC Program began to offer a free medication program for WTC-related illnesses. We believe that this is an indispensable part of our Treatment Program, as many of our members and union security benefits funds (prescription plans) have been burdened financially by paying for WTC medications. By offering medications at no cost, a barrier to care is removed so that health outcomes can be improved.

We advise all members who worked at any of the WTC sites to remain active in the FDNY Monitoring and Treatment Program. Only with early diagnosis and treatment can there be improvement in health outcomes and demonstrated need for continued funding of this vital program. Member participation does not begin and end with a visit to BHS; we will be periodically contacting members for case management follow-ups and we urge members to contact us if any new or additional medical or psychological issues arise. You are the best source of information about your own well-being and active participation in this program will help us continue to

work as a team in maintaining your health.

This report has presented the information and data that we have gathered during the past five years. It is a reflection of how the FDNY has responded to meet the needs of our members. It is clear that we continue to see members who are still suffering from a variety of ailments that can be attributed to this event. It is also clear that only with long-term health monitoring and treatment will we learn how this exposure correlates with the onset of serious long-term diseases, such as emphysema, pulmonary fibrosis and cancer.

We wish to thank all those who served so selflessly at the WTC on and after September 11, 2001. The WTC Monitoring and Treatment Program has been a successful joint labor/management initiative that has served as a model for New York City. Health and fitness are of paramount importance in fulfilling the mission of protecting life and property in New York City. Our shared goal continues to be to maximize the physical and mental health of our work force, both now and in the future. Working together, we will continue to make progress toward that goal. Our health is a gift that deserves our close attention. Be well and stay safe.

APPENDIX A • PUBLICATION LIST

Acute Eosinophilic Pneumonia in a New York City Firefighter Exposed to World Trade Center Dust. By Rom WN, Weiden M, Garcia R, Ting AY, Vathesatogkit P, Tse DB, McGuinness G, Roggli V, Prezant DJ, published in *American Journal of Respiratory and Critical Care Medicine*, July 2002; 166:797-800.

Cough and Bronchial Responsiveness in Firefighters at the World Trade Center Site. By Prezant DJ, Weiden M, Banauch GI, McGuinness G, Rom WN, Aldrich TK and Kelly KJ, published in *New England Journal of Medicine*, September 12, 2002; 347:806-15.

Injuries and Illnesses Among New York City Fire Department Rescue Workers After Responding to the World Trade Center Attacks. By Banauch GI, McLaughlin M, Hirschhorn R, Corrigan M, Kelly KJ, Prezant DJ, published in *MMWR*, September 11, 2002; 51:1-5.

Use of Respiratory Protection Among Responders at the World Trade Center Site--New York City, September 2001. By Prezant DJ, Kelly KJ, Jackson B, Peterson D, Feldman D, Baron S, Mueller CA, Bernard B, Lushniak B, Smith L, BerryAnn R, Hoffman B, published in *MMWR*, September 11, 2002; 51:6-8.

Persistent Hyperreactivity and Reactive Airway Dysfunction in Firefighters at the World Trade Center. By Banauch GI, Alleyne D, Sanchez R, Olender K, Weiden M, Kelly KJ, Prezant DJ, published in *Am. J. Resp. Crit. Care Med.*, February 2003; 168:54-62.

Biomonitoring of Chemical Exposure Among New York City Firefighters Responding to the World Trade Center Fire and Collapse. By Edelman P, Osterloh J, Pirkle J, Grainger J, Jones R, Blount B, Calafat A, Turner W, Caudill S, Feldman DM, Baron S, Bernard BP, Lushniak BD, Kelly KJ, Prezant DJ, published in *Environmental Health Perspectives*, September 2003; 111:1906-1911.

Rising to the Challenge: The Counseling Service Unit of the Fire Department of New York Moves Forward After September 11, 2001. By Corrigan MP, Kelly KJ, Prezant DJ, Hart M, Crawford L, published by FDNY, 2003.

Symptoms, Respirator Use, and Pulmonary Function Changes Among New York City Firefighters Responding to the World Trade Center Disaster. By Feldman DM, Baron S, Mueller CA, Bernard BP, Lushniak BD, Kelly KJ, Prezant DJ, published in *Chest*, April 2004; 125:1256-64.

Induced Sputum Assessment in New York City Firefighters Exposed to World Trade Center Dust. By Fireman E, Lerman Y, Ganor E, Greif J, Fireman Shores S, Oppenheim E, Flash R, Miller A, Banauch GI, Weiden M, Kelly KJ, Prezant DJ, published in *Environmental Health Perspectives*, November 2004; 112:1564-1569.

Bronchial Hyperreactivity and Other Inhalation Lung Injuries in Rescue/Recovery Workers After the World Trade Center Collapse. By Banauch GI, Dhala A, Alleyne D, Alva R, Santhyadka G, Krasko A, Weiden M, Kelly KJ, Prezant DJ, published in *Am. J. Resp. Crit. Care Med.*, 2005; 33:S102-S106.

Pulmonary Disease in Rescue Workers at the World Trade Center Site. By Banauch GI, Dhala A, Prezant DJ, published in *Curr. Opin. Pulm. Med.*, 2005; 11:160-8.

“Tobacco Free with FDNY” The New York City Fire Department World Trade Center Tobacco Cessation Study. By Bars MP, Banauch GI, Appel DW, Andreaci M, Mouren P, Kelly KJ, Prezant DJ, published in *Chest*, April 2006; 129:979-987.

Pulmonary Function After Exposure to the World Trade Center in the New York City Fire Department. By Banauch GI, Hall C, Weiden M, Cohen HW, Aldrich TK, Christodoulou V, Arcentales N, Kelly KJ, Prezant DJ, published in *Am. J. Resp. Crit. Care Med.*, August 2006; 174:312-319.

FDNY Crisis Counseling: Innovative Responses to 9/11 Firefighters, Families, and Communities. By Greene P, Kane D, Christ G, Lynch S, Corrigan M, published by John Wiley & Sons Inc., Hoboken; 2006.

World Trade Center Sarcoid-Like Granulomatous Pulmonary Disease in NYC Fire Rescue Workers. By Izbicki G, Chaulko R, Banauch GI, Weiden M, Berger K, Kelly KJ, Aldrich TK, Prezant DJ, published in *Chest*, April 2007; 131:1414-1423.

PLEASE TAKE THIS PERSONAL HEALTH QUIZ

We are very concerned about your health as WTC responders. These health quizzes are for your personal use and may be able to help you identify WTC-related illness. We hope this information will facilitate your decision on whether self-referral to FDNY-BHS or your own physician is necessary.

Have you experienced any upper respiratory conditions? **NOT COUNTING WHEN YOU HAVE A COLD**, please put a check in the box next to any problems you have had in **THE PAST 4 WEEKS OR REPEATEDLY IN THE PAST 12 MONTHS**.

- Nose irritation, soreness or burning
- Runny nose or postnasal drip
- Frequent nosebleeds
- Nasal or sinus congestion
- Sinus or face pain or pressure
- Frequent headaches

Have you experienced any gastro-intestinal conditions? Please put a check in the box next to any problems you have had in **THE PAST 4 WEEKS OR REPEATEDLY IN THE PAST 12 MONTHS**.

- Difficulty swallowing (feels like food gets stuck)
- Coughing after you lie down or eat
- Frequent nausea (at least 2 times per week)
- Frequent sour or acid taste in the mouth (at least 2 times per week)
- Frequent acid reflux/regurgitation into mouth (at least 2 times per week)
- Frequent heartburn/indigestion (at least 2 times per week)

Have you experienced any lower respiratory conditions? Please put a check in the box next to any problems you have had in **THE PAST 4 WEEKS OR REPEATEDLY IN THE PAST 12 MONTHS**.

- Wheezing or whistling in your chest
- Difficulty taking in a full breath
- Shortness of breath
- Frequent or usual cough (at least 4 times per day, 4 days per week, 4 consecutive weeks per year)

Have you experienced these symptoms when exposed to **IRRITANTS**? Please put a check in the box next to anything that has provoked your lower respiratory symptoms in **THE PAST 4 WEEKS OR REPEATEDLY IN THE PAST 12 MONTHS**.

- Exercise or physical activity
- Strong odors
- Dust
- Allergens
- Temperature or humidity extremes
- Smoke or fumes

The checklist above is not a formal diagnostic tool. It is simply a list of symptoms associated with WTC-related illnesses. If you put a check in the box next to **MORE THAN ONE** of these problems and you were present at one of the WTC sites, you may have a WTC-related illness. Only a health care professional can formally diagnose this condition. Please contact your doctor or call the FDNY-WTC Medical Monitoring and Treatment Program at 718-999-1858 to make a treatment appointment.



FDNY-CSU Locations

Manhattan Counseling Unit

251 Lafayette Street, 3rd Fl, NYC 10012
(212) 570-1693 (24-Hour Line)

Staten Island Counseling Unit

1688 Victory Boulevard
Staten Island, NY 10314
(718) 815-4111

Fort Totten Counseling Unit

Fort Totten Building 413A
Bayside, NY 11364
(718) 352-2140

Brentwood Counseling Unit

Liberty Project Center
Suffolk County Community College
Crooked Hill Road,
Brentwood, NY 11717
(631) 851-6888

Orange County Counseling Unit

2279 Goshen Turnpike
Middletown, NY 10941
(845) 695-1029

Substance Abuse Day-Treatment Program

594 Broadway, Suite 500
(212) 925-6671

FDNY Headquarters

9 MetroTech Center
Brooklyn, NY 11201-3857
(718) 999-1858
(718) 999-0088 (fax)

Medical Monitoring Examinations

FDNY Headquarters

9 MetroTech Center
Brooklyn, NY 11201-3857
(718) 999-1858
(718) 999-0088 (fax)

Tobacco Cessation Program

9 MetroTech Center
Brooklyn, NY 11201-3857
Fort Totten Building 413B
Bayside, NY 11364
(718) 999-1942

APPENDIX B • WELLNESS SELF-TESTS AND TIPS

PLEASE TAKE THIS PERSONAL HEALTH QUIZ

During the past 2 weeks, have you been bothered by any of the following problems? Please put a check in the box next to any problems you have.

- Little interest or pleasure in doing things
- Feeling down, depressed or hopeless
- Sleep difficulties
- Fatigue or lack of energy
- Change in appetite
- Feeling worthless or that you are a failure
- Difficulty concentrating
- Lack of motivation
- Feeling restless or fidgety
- Suicidal thoughts

Do these symptoms affect your ability to function, either at home or work?

- Yes
- No

The checklist above is not a formal diagnostic tool. It is simply a list of symptoms associated with depression. If you put a check in the box next to MORE THAN ONE of these problems, you may have depression. Only a health care professional can formally diagnose this condition. Please contact your doctor or the FDNY Counseling Services Unit to find out what treatment options are available. A list of CSU locations and phone numbers can be found on this page. If you put a check in the box next to suicidal thoughts, you should call your doctor or the FDNY counseling unit 24-hour phone line immediately at 212-570-1693.

Have you lived through a scary and dangerous life-threatening event? Please put a check in the box next to any problems you have had in THE PAST MONTH.

- I feel like the terrible event is happening all over again. This feeling often comes without warning.
- I have nightmares and scary memories of the event.
- I stay away from places that remind me of the event.
- I jump and feel very upset when something happens without warning.
- I have a hard time trusting or feeling close to other people.
- I get mad very easily.
- I feel guilty because others died and I lived.
- I have trouble sleeping and my muscles are tense.

Do these symptoms affect your ability to function, either at home or work?

- Yes
- No

The checklist above is not a formal diagnostic tool. It is simply a list of symptoms associated with Post-Traumatic Stress Disorder (PTSD). If you put a check in the box to MORE THAN ONE of these problems, you may have PTSD. Only a health care professional can formally diagnose this condition. Please contact your doctor or the FDNY Counseling Services Unit to find out what treatment options are available. A list of CSU locations and phone numbers can be found on this page.

Wellness Tips

WHAT YOU CAN DO TO START THE HEALING PROCESS

We are all concerned about WTC-related respiratory and mental health diseases. Cancer and heart disease are concerns for all Firefighters and many of us are concerned that WTC exposures will have a further negative impact. Although none of us can take back our past exposures, there are many steps we can take to reduce our risk for developing illness in the future.

Wellness involves the health of the whole person. The body must be kept strong, fit and well-nourished, so it's able to resist disease and overcome injury. This is a team effort, combining mind, body and spirit. Wellness is more than just not being sick--it's a positive state of health. Wellness means taking responsibility for your own health by:

1. *Learn how to stay healthy*
 - Have an annual medical examination.
 - Respond to your body's warning signs and visit your health-care provider--before something serious happens.
 - Get an annual influenza vaccination.
 - Get a pneumococcal vaccination, especially recommended for those with pulmonary disease.
2. *Practice good health habits and give up harmful ones*
 - Quit smoking now! Eliminate exposure to second-hand smoke. For help quitting, please call the FDNY Tobacco Cessation Program at 718-999-1942.
 - Avoid alcohol abuse and drug use.
 - Avoid occupational or recreational exposures that are known to exacerbate illness. Always wear your mask.
 - Get enough exercise. Adults need at least 30 minutes of physical activity on most days of the week.
 - Practice safe sex with a loved one.
 - Eat right. Make smart choices from each food group every day. If you have gastroesophageal reflux disease (GERD), diet modification and weight control are integral to the management of this disease. Don't eat for 2 hours before lying down and

avoid caffeine, carbonated beverages, chocolate, alcohol, spices, tomatoes and citrus fruits/juice.

3. *Learn how to manage stress*
 - Try to relax. Go to a movie, a ball game or participate in religious, social or other activities that may make you feel better.
 - Improve your environment. Small changes around your home or office help you feel in control.
 - Plan your work to make efficient use of your time and energy.
 - Be realistic. Set practical goals for yourself.
 - Try to be with other people and confide in someone. It is usually better than being alone and secretive.
 - Seek professional help. Don't ignore symptoms of stress.

Focus on your own wellness. You can be healthier, feel better, look better and live longer!

In August 2006, the New York City Department of Health and Mental Hygiene released Clinical Guidelines for Adults Exposed to the World Trade Center Disaster. Due to the fact that many New Yorkers have health problems that may be associated with WTC exposure, it is essential that primary care physicians know how to identify, evaluate, treat and possibly refer these individuals to specialists. The publication suggests how clinicians can determine a patient's exposure history and identifies many health problems that may have been caused or made worse by WTC exposure. It also offers algorithms to help clinicians diagnose, treat and manage WTC-related conditions. The guidelines are included with this book. You can give them to your personal doctor if you so desire. Your doctor also can download them from the NYC Department of Health and Mental Hygiene website at:

<http://www.nyc.gov/html/doh/downloads/pdf/chi/chi25-7.pdf>.

"I think if you have no symptoms at rest, exercise, stress or work and you have been in our monitoring program, then you are fine, but need to continue monitoring in case late-emerging diseases occur. However, if you have symptoms or abnormal findings from the monitoring program, then you should be evaluated for treatment."

Dr. David Prezant

POSTSCRIPT • A SALUTE TO THE RESCUE WORKERS FROM THOSE WHO MADE THE SUPREME SACRIFICE ON 9/11/01



The 9/11 Memorial Waterford Crystal

The sculpture, which depicts the recovery of FDNY Chaplain Father Mychal Judge, took more than 200 hours to create. It was presented to FDNY at the quarters of Engine 1/Ladder 24. The firehouse is located directly across the street from the friary at St. Francis of Assisi Church, where Father Mychal Judge resided.

"When you have a Department whose men and women are expected to be ready at any moment to put their lives on the line, to go to the aid of a stranger, even when it means that you may put yourself in dire peril, I don't think you can pay people to do that job. There has to be something beyond money that makes them do that."

William M. Feehan
First Deputy Fire Commissioner & Former Chief of Department
Made the Supreme Sacrifice on 9/11/01

"I am proud of this Department. But, I am most proud of the men and women--Firefighters, Officers, Fire Marshals, Paramedics/EMTs, Inspectors and all the dedicated support staff--who so selflessly perform their jobs, often placing themselves at risk, to ensure the health and safety of all New Yorkers and the millions who visit this great City each year."

Peter J. Ganci, Jr., Chief of Department
Made the Supreme Sacrifice on 9/11/01

"You'll have good days and bad days, up days and down days, sad days and happy days, but never a boring day on this job. You'll love this job. What a blessing that is! A difficult job and God calls you to it and gives you a love for it, so that a difficult job will be well-done."

Father Mychal Judge, OFM, FDNY Chaplain
Made the Supreme Sacrifice on 9/11/01

**New York City Fire Department Members
Who Made The Supreme Sacrifice
In The Performance of Duty
At The World Trade Center
September 11, 2001
Manhattan Box 5-5-8087**

First Deputy Commissioner William M. Feehan
Office of Fire Commissioner
Chief of Department Peter J. Ganci, Jr., COD
Assistant Chief Gerard A. Barbara, Operations
Assistant Chief Donald J. Burns, Operations
Deputy Chief Dennis A. Cross, Battalion 57
Deputy Chief Raymond M. Downey, SOC
Deputy Chief Edward F. Geraghty, Battalion 9
Department Chaplain Mychal F. Judge, OFM
Deputy Chief Charles L. Kasper, JRC
Deputy Chief Joseph R. Marchbanks, Jr., Battalion 12
Deputy Chief Orio J. Palmer, Battalion 7
Deputy Chief John M. Paolillo, SOC
Battalion Chief James M. Amato, Squad Co. 1
Battalion Chief Thomas P. DeAngelis, Battalion 8
Battalion Chief Dennis L. Devlin, Division 3
Battalion Chief John J. Fanning, Haz-Mat Operations
Battalion Chief Thomas J. Farino, Engine Co. 26
Battalion Chief Joseph D. Farrelly, Engine Co. 4
Battalion Chief Joseph Grzelak, Battalion 48
Battalion Chief Thomas T. Haskell, Jr., Ladder Co. 132
Battalion Chief Brian C. Hickey, Rescue Co. 4
Battalion Chief William J. McGovern, Battalion 2
Battalion Chief Louis J. Modafferi, Rescue Co. 5
Battalion Chief John M. Moran, SOC
Battalion Chief Richard A. Prunty, Battalion 2
Battalion Chief Matthew L. Ryan, Battalion 42
Battalion Chief Fred C. Scheffold, Battalion 12
Battalion Chief Lawrence T. Stack, Safety Battalion 1
Battalion Chief John P. Williamson, Battalion 6
Captain Daniel J. Brethel, Ladder Co. 24
Captain Patrick J. Brown, Ladder Co. 3
Captain Vincent E. Brunton, Ladder Co. 105
Captain William F. Burke, Jr., Engine Co. 21
Captain Frank J. Callahan, Ladder Co. 35
Captain Martin J. Egan, Jr., Ladder Co. 118
Captain Michael A. Esposito, Squad Co. 1
Captain John R. Fischer, Ladder Co. 20
Captain Vincent F. Giammona, Ladder Co. 5
Captain Terence S. Hatton, Rescue Co. 1
Captain Walter G. Hynes, Ladder Co. 13
Captain Frederick J. Illi, Jr., Ladder Co. 2
Captain William E. McGinn, Squad Co. 18
Captain Thomas C. Moody, Engine Co. 310
Captain Daniel O'Callaghan, Ladder Co. 4
Captain William S. O'Keefe, Engine Co. 154
Captain Vernon A. Richard, Ladder Co. 7
Captain Timothy M. Stackpole, Ladder Co. 103
Captain Patrick J. Waters, Haz-Mat Co. 1
Captain David T. Wooley, Ladder Co. 4
Lieutenant Joseph Agnello, Ladder Co. 118
Lieutenant Brian G. Ahearn, Engine Co. 230
Lieutenant Gregg Atlas, Engine Co. 10

Lieutenant Steven J. Bates, Engine Co. 235
Lieutenant Carl J. Bedigian, Engine Co. 214
Lieutenant John A. Crisci, Haz-Mat Co. 1
Lieutenant Edward A. D'Atri, Squad Co. 1
Lieutenant Manuel Del Valle, Jr., Engine Co. 5
Lieutenant Andrew J. Desperito, Engine Co. 3
Lieutenant Kevin W. Donnelly, Ladder Co. 1
Lieutenant Kevin C. Dowdell, Rescue Co. 4
Lieutenant Michael N. Fodor, Ladder Co. 21
Lieutenant David J. Fontana, Squad Co. 1
Lieutenant Andrew A. Fredericks, Squad Co. 18
Lieutenant Peter L. Freund, Engine Co. 55
Lieutenant Charles W. Garbarini, Ladder Co. 61
Lieutenant Ronnie E. Gies, Squad Co. 288
Lieutenant John F. Ginley, Engine Co. 40
Lieutenant Geoffrey E. Guja, Engine Co. 82
Lieutenant Joseph P. Gullickson, Ladder Co. 101
Lieutenant David Halderman, Squad Co. 18
Lieutenant Vincent G. Halloran, Ladder Co. 8
Lieutenant Harvey L. Harrell, Rescue Co. 5
Lieutenant Stephen G. Harrell, Ladder Co. 157
Lieutenant Michael K. Healey, Squad Co. 41
Lieutenant Timothy B. Higgins, Squad Co. 252
Lieutenant Anthony M. Jovic, Ladder Co. 34
Lieutenant Thomas R. Kelly, Ladder Co. 105
Lieutenant Ronald T. Kerwin, Squad Co. 288
Lieutenant Joseph G. Leavey, Ladder Co. 15
Lieutenant Michael F. Lynch, Ladder Co. 4
Lieutenant Patrick J. Lyons, Squad Co. 252
Lieutenant Charles J. Margotta, Ladder Co. 85
Lieutenant Peter C. Martin, Rescue Co. 2
Lieutenant Paul R. Martini, Engine Co. 201
Lieutenant Paul T. Mitchell, Ladder Co. 110
Lieutenant Dennis Mojica, Rescue Co. 1
Lieutenant Raymond E. Murphy, Ladder Co. 16
Lieutenant Robert B. Nagel, Engine Co. 58
Lieutenant John P. Napolitano, Rescue Co. 2
Lieutenant Thomas G. O'Hagan, Engine Co. 52
Lieutenant Glenn C. Perry, Ladder Co. 34
Lieutenant Philip S. Petti, Ladder Co. 148
Lieutenant Kevin J. Pfeifer, Engine Co. 33
Lieutenant Kenneth J. Phelan, Engine Co. 217
Lieutenant Michael T. Quilty, Ladder Co. 11
Lieutenant Robert M. Regan, Ladder Co. 118
Lieutenant Michael T. Russo, Squad Co. 1
Lieutenant Christopher P. Sullivan, Ladder Co. 111
Lieutenant Robert F. Wallace, Engine Co. 205
Lieutenant Jeffrey P. Walz, Ladder Co. 9
Lieutenant Michael P. Warchola, Ladder Co. 5
Lieutenant Glenn E. Wilkinson, Engine Co. 238
Fire Marshal Ronald P. Bucca, Manhattan Base
Fire Marshal Andre G. Fletcher, Rescue Co. 5
Fire Marshal Vincent D. Kane, Engine Co. 22
Fire Marshal Kenneth B. Kumpel, Ladder Co. 25
Fire Marshal Paul J. Pansini, Engine Co. 10
Firefighter Eric T. Allen, Squad Co. 18
Firefighter Richard D. Allen, Ladder Co. 15
Firefighter Calixto Anaya, Jr., Engine Co. 4
Firefighter Joseph J. Angelini, Sr., Rescue Co. 1
Firefighter Joseph J. Angelini, Jr., Ladder Co. 4

Firefighter Faustino Apostol, Jr., Battalion 2
Firefighter David G. Arce, Engine Co. 33
Firefighter Louis Arena, Ladder Co. 5
Firefighter Carl F. Asaro, Battalion 9
Firefighter Gerald T. Atwood, Ladder Co. 21
Firefighter Gerard Baptiste, Ladder Co. 9
Firefighter Matthew E. Barnes, Ladder Co. 25
Firefighter Arthur T. Barry, Ladder Co. 15
Firefighter Stephen E. Belsom, Ladder Co. 24
Firefighter John P. Bergin, Rescue Co. 5
Firefighter Andrew A. Beyer, Engine Co. 6
Firefighter Peter A. Bielfeld, Ladder Co. 42
Firefighter Brian E. Blicher, Engine Co. 33
Firefighter Carl V. Bini, Rescue Co. 5
Firefighter Christopher J. Blackwell, Rescue Co. 3
Firefighter Michael L. Bocchino, Battalion 48
Firefighter Frank J. Bonomo, Engine Co. 230
Firefighter Gary R. Box, Squad Co. 1
Firefighter Vincent G. Boyle, Engine Co. 33
Firefighter Kevin H. Bracken, Engine Co. 40
Firefighter Michael E. Brennan, Ladder Co. 4
Firefighter Peter Brennan, Squad Co. 288
Firefighter Andrew C. Brunn, Ladder Co. 5
Firefighter Gregory J. Buck, Engine Co. 201
Firefighter John P. Burnside, Ladder Co. 20
Firefighter Thomas M. Butler, Squad Co. 1
Firefighter Patrick D. Byrne, Ladder Co. 101
Firefighter George C. Cain, Ladder Co. 7
Firefighter Salvatore B. Calabro, Ladder Co. 101
Firefighter Michael F. Cammarata, Ladder Co. 11
Firefighter Brian Cannizzaro, Ladder Co. 101
Firefighter Dennis M. Carey, Haz-Mat Co. 1
Firefighter Michael S. Carlo, Engine Co. 230
Firefighter Michael T. Carroll, Ladder Co. 3
Firefighter Peter J. Carroll, Squad Co. 1
Firefighter Thomas A. Casoria, Engine Co. 22
Firefighter Michael J. Cawley, Ladder Co. 136
Firefighter Vernon P. Cherry, Ladder Co. 118
Firefighter Nicholas P. Chiofalo, Engine Co. 235
Firefighter John G. Chipura, Engine Co. 219
Firefighter Michael J. Clarke, Ladder Co. 2
Firefighter Steven Coakley, Engine Co. 217
Firefighter Michael T. Coleman, Squad Co. 252
Firefighter John M. Collins, Ladder Co. 25
Firefighter Robert J. Cordice, Engine Co. 152
Firefighter Ruben D. Correa, Engine Co. 74
Firefighter James R. Coyle, Ladder Co. 3
Firefighter Robert J. Crawford, Safety Battalion 1
Firefighter Thomas P. Cullen, III, Squad Co. 41
Firefighter Robert Curatolo, Ladder Co. 16
Firefighter Michael D. D'Auria, Engine Co. 40
Firefighter Scott M. Davidson, Ladder Co. 118
Firefighter Edward J. Day, Ladder Co. 11
Firefighter Martin N. DeMeo, Haz-Mat Co. 1
Firefighter David P. DeRubbio, Engine Co. 226
Firefighter Gerard P. Dewan, Ladder Co. 3
Firefighter George DiPasquale, Ladder Co. 2
Firefighter Gerard J. Duffy, Ladder Co. 21
Firefighter Joseph J. Eiferis, Engine Co. 22
Firefighter Francis Esposito, Engine Co. 235

Firefighter Robert E. Evans, Engine Co. 33
Firefighter Terrence P. Farrell, Rescue Co. 4
Firefighter Lee S. Fehling, Engine Co. 235
Firefighter Alan D. Feinberg, Battalion 9
Firefighter Michael C. Fiore, Rescue Co. 5
Firefighter John J. Florio, Engine Co. 214
Firefighter Thomas J. Foley, Engine Co. 3
Firefighter Robert J. Foti, Ladder Co. 7
Firefighter Thomas Gambino, Jr., Rescue Co. 3
Firefighter Thomas A. Gardner, Haz-Mat Co. 1
Firefighter Matthew D. Garvey, Squad Co. 1
Firefighter Bruce H. Gary, Engine Co. 40
Firefighter Gary P. Geidel, Rescue Co. 1
Firefighter Denis P. Germain, Ladder Co. 2
Firefighter James A. Gibson, Ladder Co. 35
Firefighter Paul J. Gill, Engine Co. 54
Firefighter Jeffrey J. Giordano, Ladder Co. 3
Firefighter John J. Giordano, Engine Co. 37
Firefighter Keith A. Glasco, Ladder Co. 21
Firefighter James M. Gray, Ladder Co. 20
Firefighter Jose A. Guadalupe, Engine Co. 54
Firefighter Robert W. Hamilton, Squad Co. 41
Firefighter Sean S. Hanley, Ladder Co. 20
Firefighter Thomas P. Hannafin, Ladder Co. 5
Firefighter Dana R. Hannon, Engine Co. 26
Firefighter Daniel E. Harlin, Ladder Co. 2
Firefighter Timothy S. Haskell, Squad Co. 18
Firefighter Michael H. Haub, Ladder Co. 4
Firefighter John F. Heffernan, Ladder Co. 11
Firefighter Ronnie L. Henderson, Engine Co. 279
Firefighter Brian Cannizzaro, Ladder Co. 21
Firefighter William L. Henry, Rescue Co. 1
Firefighter Thomas J. Hetzel, Ladder Co. 13
Firefighter Jonathan R. Hohmann, Haz-Mat Co. 1
Firefighter Thomas P. Holohan, Engine Co. 6
Firefighter Joseph G. Hunter, Squad Co. 288
Firefighter Jonathan L. Ielpi, Squad Co. 288
Firefighter William R. Johnston, Engine Co. 6
Firefighter Andrew B. Jordan, Ladder Co. 132
Firefighter Karl H. Joseph, Engine Co. 207
Firefighter Angel L. Juarbe, Jr., Ladder Co. 12
Firefighter Paul H. Keating, Ladder Co. 5
Firefighter Richard J. Kelly, Jr., Ladder Co. 11
Firefighter Thomas W. Kelly, Ladder Co. 15
Firefighter Thomas J. Kennedy, Ladder Co. 101
Firefighter Michael V. Kiefer, Ladder Co. 132
Firefighter Robert C. King, Jr., Engine Co. 33
Firefighter Scott M. Kopytko, Ladder Co. 15
Firefighter William E. Krukowski, Ladder Co. 21
Firefighter Thomas J. Kuevickis, Squad Co. 252
Firefighter David J. LaForge, Ladder Co. 20
Firefighter William D. Lake, Rescue Co. 2
Firefighter Robert T. Lane, Engine Co. 55
Firefighter Peter J. Langone, Squad Co. 252
Firefighter Scott A. Larsen, Ladder Co. 15
Firefighter Neil J. Leavy, Engine Co. 217
Firefighter Daniel F. Libretti, Rescue Co. 2
Firefighter Robert T. Linnane, Ladder Co. 20
Firefighter Michael F. Lynch, Engine Co. 40
Firefighter Michael J. Lyons, Squad Co. 41

Firefighter Joseph Maffeo, Ladder Co. 101
Firefighter William J. Mahoney, Rescue Co. 4
Firefighter Joseph E. Maloney, Ladder Co. 3
Firefighter Kenneth J. Marino, Rescue Co. 1
Firefighter John D. Marshall, Engine Co. 23
Firefighter Joseph A. Mascali, Rescue Co. 5
Firefighter Keithroy M. Maynard, Engine Co. 33
Firefighter Brian G. McAleese, Engine Co. 226
Firefighter John K. McAvoy, Ladder Co. 3
Firefighter Thomas J. McCann, Engine Co. 65
Firefighter Dennis P. McHugh, Ladder Co. 13
Firefighter Robert D. McMahon, Ladder Co. 20
Firefighter Robert W. McPadden, Engine Co. 23
Firefighter Terence A. McShane, Ladder Co. 101
Firefighter Timothy P. McSweeney, Ladder Co. 1
Firefighter Martin E. McWilliams, Engine Co. 22
Firefighter Raymond M. Meisenheimer, Rescue Co. 3
Firefighter Charles R. Mendez, Ladder Co. 7
Firefighter Steve J. Mercado, Ladder Co. 40
Firefighter Douglas C. Miller, Rescue Co. 5
Firefighter Henry A. Miller, Jr., Ladder Co. 105
Firefighter Robert J. Minara, Ladder Co. 25
Firefighter Thomas Mingsione, Ladder Co. 132
Firefighter Manuel Mojica, Squad Co. 18
Firefighter Carl E. Molinaro, Ladder Co. 2
Firefighter Michael G. Montesi, Rescue Co. 1
Firefighter Vincent S. Morello, Ladder Co. 35
Firefighter Christopher M. Mozzillo, Engine Co. 55
Firefighter Richard T. Muldowney, Jr., Ladder Co. 7
Firefighter Michael D. Mullan, Ladder Co. 12
Firefighter Joseph P. Henry, Ladder Co. 21
Firefighter Peter A. Nelson, Rescue Co. 4
Firefighter Gerard T. Nevins, Rescue Co. 1
Firefighter Dennis P. O'Berg, Ladder Co. 105
Firefighter Douglas E. Oelschlagler, Ladder Co. 7
Firefighter Joseph J. Ogren, Ladder Co. 3
Firefighter Samuel P. Olice, Ladder Co. 4
Firefighter Patrick J. O'Keefe, Rescue Co. 1
Firefighter Eric T. Olsen, Ladder Co. 15
Firefighter Jeffrey J. Olsen, Engine Co. 10
Firefighter Steven J. Olson, Ladder Co. 3
Firefighter Kevin M. O'Rourke, Rescue Co. 2
Firefighter Michael J. Otten, Ladder Co. 35
Firefighter Jeffrey A. Palazzo, Rescue Co. 5
Firefighter Frank Palombo, Ladder Co. 105
Firefighter James N. Pappageorge, Engine Co. 23
Firefighter Robert E. Parro, Engine Co. 8
Firefighter Durrell V. Pearsall, Rescue Co. 4
Firefighter Christopher J. Pickford, Engine Co. 201
Firefighter Shawn E. Powell, Engine Co. 207
Firefighter Vincent A. Princiotta, Ladder Co. 7
Firefighter Kevin M. Prior, Squad Co. 252
Firefighter Lincoln Quappe, Rescue Co. 2
Firefighter Leonard J. Ragaglia, Engine Co. 54
Firefighter Michael P. Ragusa, Engine Co. 279
Firefighter Edward J. Rall, Rescue Co. 2
Firefighter Adam D. Rand, Squad Co. 288
Firefighter Donald J. Regan, Rescue Co. 3
Firefighter Christian Reegenhard, Ladder Co. 131
Firefighter Kevin O. Reilly, Engine Co. 207

Firefighter James C. Riches, Engine Co. 4
Firefighter Joseph R. Rivelli, Jr., Ladder Co. 25
Firefighter Michael E. Roberts, Engine Co. 214
Firefighter Michael E. Roberts, Ladder Co. 35
Firefighter Anthony Rodriguez, Engine Co. 279
Firefighter Matthew S. Rogan, Ladder Co. 11
Firefighter Nicholas P. Rossomando, Rescue Co. 5
Firefighter Paul G. Ruback, Ladder Co. 25
Firefighter Stephen Russell, Engine Co. 55
Firefighter Thomas E. Sabella, Ladder Co. 13
Firefighter Christopher A. Santora, Engine Co. 54
Firefighter John A. Santore, Ladder Co. 5
Firefighter Gregory T. Saucedo, Ladder Co. 5
Firefighter Dennis Scaudo, Haz-Mat Co. 1
Firefighter John A. Scharth, Engine Co. 201
Firefighter Thomas G. Schoales, Engine Co. 4
Firefighter Gerard P. Schrang, Rescue Co. 3
Firefighter Gregory R. Sikorsky, Squad Co. 41
Firefighter Stephen G. Siller, Ladder Co. 1
Firefighter Stanley S. Smagala, Jr., Engine Co. 226
Firefighter Kevin J. Smith, Haz-Mat Co. 1
Firefighter Leon Smith, Jr., Ladder Co. 118
Firefighter Robert W. Spear, Jr., Engine Co. 26
Firefighter Joseph P. Spor, Rescue Co. 3
Firefighter Gregory M. Stajk, Ladder Co. 13
Firefighter Jeffrey Stark, Engine Co. 230
Firefighter Benjamin Suarez, Ladder Co. 21
Firefighter Daniel T. Suhr, Engine Co. 216
Firefighter Brian E. Sweeney, Rescue Co. 1
Firefighter Sean P. Tallon, Ladder Co. 10
Firefighter Allan Tarasiewicz, Rescue Co. 5
Firefighter Paul A. Tegtmeier, Engine Co. 4
Firefighter John P. Tierney, Ladder Co. 9
Firefighter John J. Tipping, II, Ladder Co. 4
Firefighter Hector L. Tirado, Jr., Engine Co. 23
Firefighter Richard B. Van Hine, Squad Co. 41
Firefighter Peter A. Vega, Ladder Co. 118
Firefighter Lawrence G. Veling, Engine Co. 235
Firefighter John T. Vigniano, II, Ladder Co. 132
Firefighter Sergio G. Villanueva, Ladder Co. 132
Firefighter Lawrence J. Virgilio, Squad Co. 18
Firefighter Kenneth T. Watson, Engine Co. 214
Firefighter Michael T. Weinberg, Engine Co. 1
Firefighter David M. Weiss, Rescue Co. 1
Firefighter Timothy M. Welty, Squad Co. 288
Firefighter Eugene M. Whelan, Engine Co. 230
Firefighter Edward J. White, Engine Co. 230
Firefighter Mark P. Whitford, Engine Co. 23
Firefighter Raymond R. York, Engine Co. 285
EMS Lieutenant Ricardo J. Quinn, EMS Battalion 57
Paramedic Carlos R. Lillo, EMS Battalion 49



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