

**Final Report:  
Occupational Health and Safety in New York**

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**List of Abbreviations**

ABLES.....	Adult Blood Lead Epidemiology and Surveillance
ACOEM.....	American College of Occupational and Environmental Medicine
BOH.....	Bureau of Occupational Health
BRFSS.....	Behavioral Risk Factor Surveillance System
CFOI.....	Census of Fatal Occupational Injuries
CSTE.....	Council of State and Territorial Epidemiologists
DEC.....	Department of Environmental Conservation
DOH.....	Department of Health
EPA.....	Environmental Protection Agency
FACE.....	Fatality Assessment and Control Evaluation
HMR.....	Heavy Metals Registry
NIOSH.....	National Institute for Occupational Safety and Health
NYC.....	New York City
NYCAMH.....	New York Center for Agricultural Medicine and Health
NYS.....	New York State
OHCN.....	Occupational Health Clinic Network
OHI.....	Occupational Health Indicator
OIICS.....	Occupation Injury & Illness Classification System
OLDR.....	Occupational Lung Disease Registry
OSHA.....	Occupational Safety and Health Administration
Parks.....	Office of Parks, Recreation and Historic Preservation
PII.....	Priority Industry Initiatives
PPR.....	Pesticide Poisoning Registry
TRF.....	Total Release Foggers
WTC.....	World Trade Center
YCIP.....	Youth Construction Initiative Program

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### **Abstract**

The systematic collection, analysis, interpretation, dissemination and use of health data is essential to understand the health status of a population, to assess progress, and to plan effective prevention programs. The New York State (NYS) Department of Health's (DOH) Bureau of Occupational Health (BOH) worked to identify new data systems to identify occupational health risks; incorporated occupational health data into other tracking systems; identified high-risk industries, occupations and populations at high-risk in New York; educated workers, businesses and health care professionals about occupational risks; and evaluated systems to determine if public health programs were making an impact on occupational health issues.

Databases were analyzed during the grant period to determine the magnitude and distribution of occupational injuries and illnesses and to identify high-risk populations in both New York State and New York City. Deidentified emergency department data was obtained during this project time period and analyzed using expected payer of Worker's Compensation as the proxy for work-relatedness along with a new variable identifying potential work-related cases.

BOH has worked extensively to identify and address occupational health issues among high-risk, vulnerable populations. A trend analysis review of traumatic occupational fatalities showed an increasing number of deaths among immigrant and Hispanic workers in NYS, similar to that seen nationally. This is driven by an increase in the total number of immigrant and Hispanic workers in NYS, demonstrating a need to target educational efforts specific to these populations.

It is recognized that engaging stakeholders and increasing partnerships is important in terms of program design and evaluation, and as a step towards integrating our occupational health work into mainstream public health practice. BOH staff work with numerous NYSDOH programs to encourage sharing of ideas and information. Primary among these activities is the Scientific Working Group for Occupational Health. Other partnerships include participating in the cross-organizational response to asthma with BOH staff participating on the guidance, surveillance; environmental and occupational, and health care delivery teams; the NYS Young Workers Safety and Health Project; the Occupational Health Clinic Network Oversight Committee; the Governor's Lead Advisory Council; the NY/NJ Hazardous Waste Worker Training Center advisory board; the NYC Mayor's World Trade Center Medical Working Group; and the September 11 Worker Protection Task Force. Staff also provide lectures on occupational health issues to students at the State University of New York Albany School of Public Health.

BOH also engages in a number of activities to share information with the general NYS community. Since 2004, a proclamation has been read on the NYS Legislative floor declaring the second Tuesday in March, Occupational Health Awareness and Outreach Day. The day promotes education and prevention efforts highlighting health and safety on the job, as well as working condition concerns of many workers across the state. It is celebrated annually with a joint press release from the NYSDOH and the NYS Department of Labor, a press conference held by the Occupational Health Clinic Network, and with tables displaying occupational health information in the state government complex in Albany.

BOH conducts surveillance of pesticide poisonings in NYS using the NYS Pesticide Poisoning Registry (PPR). This program receives reports from physicians, health facilities and clinical laboratories and offers timely follow-up and intervention in various exposure situations. The PPR has been an integral part of surveillance activities developed to identify and characterize possible health effects related to West Nile Virus mosquito control programs in NYS.

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In order to improve reporting, physician outreach has been targeted to specific populations that are most likely to encounter pesticide poisonings. Educational outreach activities included distributing PPR materials to pesticide applicators; PPR staff providing information on symptoms associated with pesticides exposure and what applicators can do once an exposure is known; a PowerPoint presentation was developed to supplement material sent to ER staff; and a CD-ROM was developed for physicians and physician assistants who may treat patients with suspected or confirmed pesticide poisoning containing a PDF version of the EPA “Recognition and Management of Pesticide Poisoning” and the ER Power Point presentation developed in 2007.

The NY Fatality Assessment and Control Evaluation (NY FACE) program has focused its intervention efforts on the following high risk populations: young workers under 25 years of age, older workers over 60 years of age, foreign-born workers, and workers who are employed in construction or agricultural industries. NY FACE also assists NIOSH FACE in investigating its targeted causes of death. Besides the routine intervention activities, NY FACE also conducts Priority Industry Initiatives (PII). PII are projects designed to target a specific sub-population within a high risk population for intervention. These projects, with clearly defined action plans, time lines and outcomes, are carried out in close collaboration with partners representing the target population. NY FACE conducted two PII: Tree Work Injury Prevention Project and Ski Areas of New York (SANY) Project. Through these initiatives, NY FACE has generated maximum impact on the target populations and achieve clear defined measurable injury prevention outcomes.

The World Trade Center (WTC) Responders Fatality Investigation program identified 836 deaths that occurred after the WTC responder among responders, volunteers and workers at the WTC and the landfill. Data analyses are currently being conducted to examine whether there is an increased risk for any specific causes of death among the responder/worker population.

## SECTION 1

### Highlights/Significant Findings

- BOH has used the occupational health indicators to identify potentially high-risk occupational disease patterns in NYS, especially in comparison to other states and the United States. Where possible, each occupational health indicator was generated for all of NYS, NYS excluding NYC, and NYC to allow us to look for geographic and demographic variability in the state. In-depth analyses, including trends, have been conducted on work-related hospitalizations since 1994 and on traumatic occupational fatalities since 1992.
- BOH has conducted and published reviews of lead data from 1994 to 2006 and occupational health clinic network data from 1988 through 2003. Publications have been developed on lead exposure among target shooters, mercury exposure among seafood consumers, and lead exposure to children due to renovation, repair and painting activities in their homes.
- NYSDOH participated in three population-based surveys for asthma. Questions regarding work-related asthma were analyzed separately by BOH.
- BOH has maintained a Scientific Working Group for Occupational Health Surveillance since 2006 which meets one to two times a year. The charge of this group is to assist in identifying relevant state-specific issues and research priorities based upon reviewing data analyzed by BOH. As part of the process of developing a shared vision and mission across the various stakeholder groups. This model serves as the basis for integrating BOH's work with the rest of the occupational health community in NYS.
- Through June 2010, NY FACE has initiated 44 cases and completed 42 investigations with the investigation reports posted on the NYSDOH website. NY FACE has developed and published a total of 74 injury prevention, education and training products including tailgate training manuals, occupational fatality alert, FACE Facts, FACE reports and occupational fatality bi-annual reports.

### Translation of Findings

- Barriers to the reporting of cases to the occupational health registries were identified using focus groups. These barriers were used to define our outreach efforts. We then pilot tested materials and distribution channels, established partnerships and emphasized evaluation to assure whether our activities were successful.
- Articles describing the evaluation of a communications campaign to increase physician reporting to a surveillance system; on work-related asthma surveillance in NYS utilizing data from three population-based surveys for asthma; and on lead exposure among adults in NYS have been accepted for publication or published. A chapter on work-related asthma was published in the biennial New York State Asthma Surveillance Summary Reports in 2005, 2007 and 2009.

### Outcomes/Relevance/Impact

- BOH has worked extensively towards integrating our occupational health products and programs into mainstream public health practice. Staff have participated on numerous internal committees increasing awareness about the Bureau and it's functions. We have also worked with numerous internal and external partners with issues such as agricultural health, asthma, young workers and lead.
- BOH has been actively involved in the NYSDOH cross-organization response to asthma which applies a systematic evidence-based approach in surveillance, environmental and occupational

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health, health care delivery and quality and community interventions. Staff involvement ensures representation of occupational health issues in NYSDOH asthma policies and activities.

- Interventions for lead exposure have been disseminated among target shooters, metal recyclers and renovators.
- In 2007, the NYS Pesticide Poisoning Registry identified incidents throughout the United States of explosions due to the highly flammable propellants in total release foggers (TRFs). Case reports were gathered from all states with pesticide poisoning registries. These were summarized and reported in the *MMWR* and *JAMA* in 2008. In NYS, as with other states, new regulations regarding use of TRFs were proposed. The NYS Pesticide Poisoning Registry provided additional guidance to the NYS Department of Environmental Conservation as to the nature and extent of the problem. Recommendations included: the amount of product in one can should be smaller, the label directions need to emphasize the explosion hazard more prominently, the product should only be sold in single individual can, not 6-packs, and, perhaps, only be used by licensed applicators.
- An evaluation of the tailgate training for mobile equipment operators showed that the training achieved an intermediate goal of increasing the trainees' awareness of occupational safety issues.
- Following the dissemination of the "Occupational Fatalities in NYS 2005-2006 Update", NY FACE conducted a survey to collect feedback from the recipients. Of those who completed the survey: 86% considered the information was clear and easy to understand, 71% considered the information relevant to their work, 52% reported that they were able to use the information for work, 86% would recommend this report to others, and 81% were interested in receiving more information on occupational fatalities in NYS.
- NY FACE collaborated with NYS Office of Parks, Recreation and Historic Preservation to evaluate the quality of the Game of Logging training and the usefulness of the manual "Logging Safety-A Field Guide" developed by NY FACE. The evaluation showed that trainees gained critical safety knowledge through Game of Logging training and studying the manual during the training. The trainees showed an across the board increase in logging and chainsaw safety knowledge after the training. The evaluation clearly demonstrated that the training was effective in increasing the trainee safety knowledge and the NY FACE logging booklet helped the trainees in gaining the knowledge.
- NY FACE report "Construction Laborer Dies after Falling off Collapsed Precast Concrete Floor Slab" was featured in the November News by PP Construction Safety (PPCS) website in Great Britain. PPCS is a health and safety information and consultancy service. PPCS commented that the NY FACE report provided more detail and insight than similar reports available in Great Britain and "will be interest to all those involved with the design and installation of precast concrete floors".
- In responding to a surge of crane fatalities in NYS, NY FACE investigated a crane fatality and developed a new partner in the crane safety field. During the investigation, we consulted with the training director for the apprenticeship program of the International Union of Operating Engineers Local 106 for technical assistance regarding crane boom disassembly operation. Through the training director, NY FACE coordinated a full day crane training session. The attendees appreciated the quality and the timeliness of the training.
- NY FACE report "Logger Crushed while Felling a Tree" was used by the State University of New York at Morrisville to develop a logging field manual.
- NY FACE reports and tailgate training manual were used for developing training materials for eight-hour Hazardous Waste-site Operations and Emergency Response annual refresher training for the technical and field staff of the Center for Environmental Health, NYSDOH.
- "Garage Door News" contacted NY FACE with a request to reprint the NY FACE report "Maintenance Mechanic Killed when Improperly Installed Overhead Garage Door Topped Scissors

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Lift”.

- Safteng.net a worldwide network for safety professionals, added a link to the NY FACE web site. Safteng.net did a confined space safety week and web subscribers were directed to NY FACE web site for examples of confined space accidents.
- The Western Area Safety Representative of the North Carolina Industrial Commission contacted NY FACE for permission to use NY FACE products in his training classes. The training course was held in Hendersonville, NC.
- The Environmental Health and Safety Director for a nationwide paint manufacturing company used the NY FACE report “Worker Fatally Injured by a Steel Blade while Cleaning a Dough Machine” in developing the company lockout/tagout program and employee training materials.
- NY FACE assessed public interest in its products as an indicator of program impact, through tracking internet traffic to each product webpage by counting web views. Through June 2010, the average total monthly views of all NY FACE products was 5,400.

## SECTION 2

### Scientific Report

#### Conducting Surveillance for Occupational Risks

The systematic collection, analysis, interpretation, dissemination and use of health data is essential to understand the health status of a population, to assess progress, and to plan effective prevention programs. The New York State (NYS) Department of Health's (DOH) Bureau of Occupational Health (BOH) worked to identify new data systems to identify occupational health risks, incorporated occupational health data into other tracking systems, identified high-risk industries, occupations and populations at high-risk in New York, and evaluated systems to determine if public health programs were making an impact on occupational health issues.

BOH has been actively involved in the development and collection of the Occupational Health Indicators (OHIs). Staff participated in the process of developing the indicators by helping define the appropriate databases and methods to generate the indicators; and took the lead in developing the “how-to” document now located on the CSTE website. NYSDOH took the lead on testing and writing all indicators associated with hospital discharge data, including indicators #2 – “Work-related hospitalizations”, #6 – “Work-related burn hospitalizations”, and #9 – “Hospitalizations due to or with Pneumoconioses”. NYSDOH has generated each of the indicators since 2001. Where possible, the indicators were also generated for prior years.

In addition to generating the OHIs, NYSDOH has actively explored the utility and limitations of the indicators. The indicators allow us to engage in broad-based surveillance that compliments the focused surveillance efforts associated with each of our Registries. We are able to use the indicators to identify potentially high-risk occupational disease patterns in NYS, especially in comparison to other states and the US. Where possible, each OHI was generated for all of NYS, NYS excluding NYC, and NYC to allow us to look for geographic and demographic variability in the state. We also recognize that because of variability in data collection systems between each state and rate instability with few data points, a few years of data does not accurately represent the occupational health condition of New Yorkers. Therefore, staff from BOH participated in a multi-state workgroup to identify appropriate statistical techniques and issues associated with conducting trend analyses. This was presented in a panel discussion titled “How can multi-year occupational health indicator data be used?” at the 2009 annual Council of State and Territorial Epidemiologists (CSTE) meeting. In-depth analyses, including examining trends, have been conducted on work-related hospitalizations since 1994 and on traumatic occupational fatalities since 1992. These analyses were shared at the annual CSTE meetings in 2008 and 2009, and the results were used to develop internal recommendations for outreach and further research.

NYSDOH launched a [prevention agenda](#) in 2008 identifying 10 priority areas for improving the health of New Yorkers with 2013 goals and measurable objectives. Part of this agenda involves working with the local communities to track their public health priority areas. Data on work-related hospitalizations and elevated blood lead levels (>25 µg/dL), at the county level, have been included in this agenda. The NYS Community Health Assessment Clearinghouse provides community health practitioners with tools, ideas, resources and a platform for dialogue toward a common goal of developing effective health assessments. BOH works directly with the Public Health Information Group to integrate and incorporate occupational health into these programs. In addition, occupational health indicators have been included as one of 19 indicators in the NYS [Community Health Data Set](#) which is a “one-stop” resource for community health planners, practitioners and policy developers and consists of a series of

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tables, maps and graphs containing health statistics organized by county of residence. Indicators for pneumoconiosis hospitalizations, asbestosis hospitalizations, work-related hospitalizations and elevated blood lead levels ( $>10$   $\mu\text{g}/\text{dL}$ ) among adults are generated at the county level for 3 years periods. The [County Health Assessment Indicator](#) report also consists of a series of tables presenting occupational health indicators for the incidence of malignant mesothelioma, hospitalizations from or with pneumoconioses and asbestosis, work-related hospitalizations, elevated blood lead levels among adults ( $>10$   $\mu\text{g}/\text{dL}$  and  $>25$   $\mu\text{g}/\text{dL}$ ), and fatal work-related injuries for a three year period.

Databases were analyzed during the grant period to determine the magnitude and distribution of occupational injuries and illnesses and to identify high-risk populations in both New York State and New York City. Deidentified emergency department data was obtained during this project time period and analyzed using expected payer of Worker's Compensation as the proxy for work-relatedness along with a new variable identifying potential work-related cases. BOH has also examined the generalizability of the indicators. Staff are currently involved in a chart review study examining the sensitivity, specificity and positive predictive value of using either expected primary payer or payment source of Workers' Compensation to define a hospitalization as work-related for those hospitalizations with a primary diagnosis of amputation or carpal tunnel syndrome. In addition, this project will help determine if the use of Workers' Compensation payment variables is an appropriate proxy to define a hospitalization as work-related for these diagnoses.

The NYS Occupational Health Clinic Network (OHCN) is the nation's only state-based occupational health clinic network and has eleven clinics located throughout NYS. The clinics, who receive funding from the NYSDOH, all use the same patient data software and patient and visit data is collected and maintained in a central database in BOH. This data, from the inception of the clinic network in 1988 through 2003, has been analyzed and a [report](#) was written describing the demographics, diseases, etiologic agents, industries and occupations associated with occupational diseases among the clinic network population. An update of this data through 2009 was recently completed and will be posted on the NYSDOH web site.

An [occupational injury/illness priority index](#) was developed using data from various sources to identify the high-risk industries, injuries and illnesses in NYS. Data from the US Bureau of Labor Statistics and NYS Workers' Compensation Board were combined for those industries with the highest number, incidence rate, days away from work, and job transfers due to injuries and illnesses. The top 5 NYS industries for work-related injuries and illnesses were health care, transportation, retail trade, manufacturing and construction. Data from the Census of Fatal Occupational Injuries was used to identify the top 5 NYS industries for work-related fatalities: construction, transportation, professional/business, retail trade, and leisure/hospitality. Work-related hospitalization data was used combining illnesses and injuries and poisonings that contributed the highest number, the longest length of stay and the highest hospitalization costs. The top 5 major diagnoses for work-related hospitalizations in NYS were musculoskeletal diseases, injuries/poisonings, circulatory system diseases, infectious/parasitic diseases and neoplasms. Among the work-related injury/poisoning hospitalizations, the top 5 types were burns, medical complications, upper limb fractures, skull fractures and lower limb fractures; with the top 5 causes being accidents caused by fire, accidental falls, motor vehicle traffic accidents, medical complications, and late effects of accidents. These results were shared with the Scientific Working Group for Occupational Health to assist in developing priority target

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areas for interventions.

Working with nine other state-based surveillance states, a five question module was added to the 2007 Behavioral Risk Factor Surveillance System (BRFSS) survey examining the proportion of workers who were injured while working during the previous 12 month time period, and the proportion of those injured where workers' compensation covered their medical expenses. Among the 10 participating states, New York had the highest rate of those injured at work (6.9 per 100 employed persons) with only 50% receiving payment for medical expenses by workers' compensation. This information was published in an MMWR article in 2010 and was shared with the NYS Workers Compensation Board and NYS Department of Labor.

BOH has aimed to maintain data collected in a manner consistent with national standards. Registries are continuously evaluated and updated to include current coding schemes and to identify data needed by end-users. The NAICS 2002 and 2007 codes and 2000 and 2002 Occupation codes have been added to the Heavy Metals Registry and the Occupational Lung Disease Registry. These were coded simultaneously with 1987 SIC codes and 1990 Census of Occupation codes. Data for these registries has been recoded back to 2000. BOH has also worked with various groups to explore the incorporation of occupational variables into electronic health records. Dr. Gelberg has worked with the Long Island Occupational and Environmental Health Center (one of the clinics in the OHCN) to develop new electronic health records incorporating medical treatment guidelines as defined by NYS Workers Compensation Board and by the American College of Occupational and Environmental Medicine (ACOEM). She also worked with North Shore Long Island Jewish Health System in defining occupational health variables that were needed in their electronic reporting system to allow automated reporting to the Occupational Lung Disease Registry and the Pesticide Poisoning Registry. BOH has reached out to other groups in NYSDOH to identify methods for physicians to report electronically to the occupational health registries including meeting with the Director of Research in Patient Safety and Quality Initiatives.

### Disparate Populations

BOH has worked extensively to identify and address occupational health issues among high-risk, vulnerable populations. The trend analysis review of the Census of Fatal Occupational Injuries data showed an increasing number of deaths among immigrant and Hispanic workers in NYS, similar to that seen nationally. This is driven by an increase in the total number of immigrant and Hispanic workers in NYS, demonstrating a need to target educational efforts specific to these populations.

In order to align BOH programs with national efforts, in 2008, staff attended a NIOSH workshop on improving surveillance for occupational health disparities. Following this meeting, staff reviewed existing data sources to identify occupations that were both high-risk and low-pay, and then looked at the employment distribution of Hispanics and non-Whites in NYS for these occupations. Based on this analysis, three occupations - nursing, psychiatric and home health aides; building cleaning workers; and construction laborers - were identified. Staff then reviewed the injuries and illnesses associated with these jobs, and worked to identify potential hazards faced by these workers. This information was shared with other states during the 2008 annual CSTE meeting. Efforts are underway to raise awareness among the general public and workers about the potential hazards associated with these jobs; develop appropriate materials to help prevent them; and conduct outreach specific to minority workers.

In order to ensure non-English speaking populations are informed of occupational risks, materials have been translated into common languages. The brochure "[Lead on the Job: A Guide for Workers](#)" has

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been translated into Spanish, Polish, Greek and Portuguese - high risk populations identified by the Heavy Metals Registry. The following FACE Fact Sheets have been translated into Spanish: “Truck Driver Run Over by Trash Compactor in Municipal Landfill”, “Not Following Lockout/Tagout Procedures can be Fatal”, “Flooding Fatal Injury Facts”, “Farming”, Contractor Run Over by Front-End Loader at City Salt Stockyard”, “Tree-Work Fatal Injury Facts”, and “Baling Fatal Injury Facts”. . [“Health and safety recommendations for indoor pesticide applications in horticultural settings”](#) is also available in Spanish.

Since 2007, NYSDOH has participated in the NYS Young Workers Safety and Health Project. This is a consortium of government agencies including Education, Labor, Health and Workers Compensation; non-profit organizations; unions and worker advocacy groups that have worked together to bring greater focus to young worker safety and health. In both 2008 and 2009, this consortium was able to get the NYS Governor to declare June Teen Worker Safety Month. With the increased awareness of issues associated with young workers and the joining of forces to address these issues, the consortium has in a very short time period made progress on several fronts. Examples include the NYS Department of Labor expanding a pilot program in conjunction with the NYS Workers' Compensation Board to investigate possible child labor law violations in cases of injured minor claimants; training of vocational education students on the County level in safety and health in the fire service and construction fields, and a safe patient handling effort targeted at nursing students; outreach has been conducted to amusement park operators to ensure child labor and minimum wage violations are not occurring; and the Young Construction Initiative is offering 10-hour OSHA trainings and an “Introduction to Basic Safety” workshop.

A new pilot project endeavor has been initiated by the NYS Workers Compensation Board to bring the on-line training tool, Passport to Safety, which is currently used in Canada and Australia, to the NYS teen audience. The Passport to Safety provides a “pre-work” foundation of minimum health and safety knowledge to teens. NYS is working to implement a school-based pilot program, aiming to educate and provide passports to 5,000 academic and career-centered high school students throughout NYS. BOH is assisting with the design of the pilot study, specifically coordinating the development of evaluation survey instruments that may be required to demonstrate the impact of the pilot. As part of this project, BOH is also exploring conducting a statewide survey working with the NYS Education Department to assess the number of student workers, types of jobs they work in, number of hours worked, and to get a background rate of student's knowledge of workplace safety information.

Annually, 30,000 migrant and seasonal farmworkers are employed in NYS, although only 14% of these consider NYS their home. These farmworkers are primarily Hispanic (86%), and about one-third of the adults do not regularly receive health care services, and less than 15% have any type of insurance. In order to better ascertain the health issues experienced by the migrant and seasonal farmworker population in NYS, NYSDOH developed a Migrant Data Advisory Group consisting of members from the Migrant Health Centers, the regional DOH offices, and bureaus within DOH including BOH. This group met between 2007 and 2009 to revamp the data collection tool and assist in developing reports that described the population, provided guidance for future activities, and examined the effectiveness of these changes. Initial data was collected in February 2009 and the original documents were amended to provided better clarity and address comments raised during completion. Variables were incorporated into this data plan to assist with identifying potential work-related conditions.

Materials about the NYS Pesticide Poisoning Registry (PPR) were distributed at the annual pre-seasonal meeting of all DOH funded contractors providing services under the Migrant and Seasonal Farm worker program. Approximately 900 water bottles carrying a hand washing and pesticide safety

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message (English, Spanish and Haitian Creole) were distributed to Migrant and Seasonal Farmworker outreach workers. Migrant Clinics also received safety sunglasses and a health message for eye protection.

The Youth Construction Initiative Program (YCIP) was funded by the Federal Highway Administration through the NYS Department of Transportation. It provides educational and job training opportunities in nine cities in upstate New York for non-college bound 11<sup>th</sup> and 12<sup>th</sup> graders who are interested in entering into the construction and engineering industries following high school graduation. Most of the students enrolled in the program are of minority background from inner city low income families. This program, despite many administrative and financial pitfalls, has managed to develop construction career pathways for a struggling subset of high school students and helped them to graduate with self confidence and goal oriented behavior. The NY Fatality Assessment and Control Evaluation (NY FACE) program reviewed the YCIP curriculum and recommended ground level discussions about worker health and safety topics as an excellent collaborative addition to this program. NY FACE participated in YCIP advisory board meetings to provide input to the long term development of the program. Per YCIP program director's request, NY FACE staff conducted two training workshops for the students. The presentation included a review of basic health and safety hazards in construction and a safety video "Remember Charlie". Relevant FACE fact sheets and investigations were incorporated into the discussions. The students actively participated in the discussions by asking specific questions and making informed comments. After the training, the students developed the phrase "Doing a Charlie" to refer to peers' unsafe risky behaviors. The students not only discussed the contents of the training among themselves, but also talked with their parents about the training. The parents commented to YCIP Director that it was very rare that their teenagers talked to them about any school activities, but they heard a lot about "Charlie" from their kids.

### Partnerships

It is recognized that engaging stakeholders and increasing partnerships is important in terms of program design and evaluation. BOH has been working to increase its partnerships within NYSDOH and externally. Internally, BOH staff are actively involved with NYSDOH's Asthma Plan and sit on the Surveillance, Health Care, and environmental committees for this plan. This involvement has not only raised awareness about work-related asthma within the Department and with the asthma partners including our regional coalitions, but has also created opportunities to increase awareness about the Occupational Lung Disease Registry.

One goal of the occupational health surveillance program in NYS is to incorporate occupational health activities into other public health activities. BOH staff work with numerous NYSDOH programs to encourage sharing of ideas and information. Primary among these activities is the Scientific Working Group for Occupational Health. Other partnerships include participating in the cross-organizational response to asthma with BOH staff participating on the guidance, surveillance; environmental and occupational, and health care delivery teams; the NYS Young Workers Safety and Health Project; the OHCN Oversight Committee; the Governor's Lead Advisory Council; the NY/NJ Hazardous Waste Worker Training Center advisory board; the NYC Mayor's World Trade Center Medical Working Group; and the September 11 Worker Protection Task Force. Staff also provide lectures on occupational health issues to students at the State University of New York Albany School of Public Health.

BOH has maintained a Scientific Working Group for Occupational Health Surveillance since 2006 which meets one to two times a year. The charge of this group is to assist in identifying relevant state-specific issues and research priorities based upon reviewing data analyzed by BOH. The steps involved

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in achieving this charge include: 1) to assist in reviewing results of analyses conducted on the OHIs, BOH Registries, and the OHCN; 2) to help promote program activities among the occupational health and safety community; and 3) to explore opportunities for technical assistance and collaboration for primary prevention research and education. In an effort to use the Working Group to assist in incorporating occupational health into public health issues, many of the members were from other bureaus within NYSDOH including the director of the Bureau of Environmental and Occupational Epidemiology, the director of the Bureau of Injury Prevention, the coordinator of the Migrant and Seasonal Farmworker Health Program, the director of the Public Health Information Group, the director of the Office of Minority Health, and the Assistant Commissioner for the Bureau of Environmental Disease Prevention in the New York City Department of Health and Mental Hygiene. Other members included the director of the Albany Occupational Safety and Health Administration (OSHA) office; the assistant director for Surveillance, in the Division of Surveillance, Hazard Evaluations and Field Studies at the National Institute for Occupational Safety and Health (NIOSH); the director of the Division of Safety and Health at NYS Department of Labor; a researcher from the NYS Department of Labor Division of Research and Statistics; the deputy director of the New York Center for Agricultural Medicine and Health (NYCAMH); and an assistant professor at the State University of New York Albany School of Public Health.

The first meeting focused on introductions with each member describing their background and how they can assist occupational health surveillance work. A few of the meetings focused on health disparities and outreach to low income, immigrant, migrant, and minority workers with presentations provided by members of the workgroup and discussion as to methods to reach this population. Another meeting had a presentation from the NYSDOH Director of Research in Patient Safety and Quality Initiatives, who provided an overview of NYS and US initiatives regarding health information technology. Discussion after her talk focused on the inclusion of occupational information. The priority index for occupational health was presented to the workgroup to encourage discussion on prioritizing occupational health activities in NYS. This was followed by discussion of an adaptation of the Regional Framework for Chronic Disease to include partners and their roles for occupational health interventions. Another meeting had a presentation from the Northeast Agricultural Center about conducting agricultural injury surveillance using EMS data.

BOH participates in national meetings including the National Occupational Research Agenda (NORA) Public Safety subcouncil; the CSTE Occupational Health Workgroup; and Planning for the Next 5 Years for ABLES. Where possible, BOH staff participate in multi-state workgroups examining specific analytic techniques including appropriate methods for conducting trend analyses for the OHIs, and appropriate methods for analyzing the work-related variables in the Asthma Call-back Survey.

BOH has worked extensively with the New York City (NYC) Department of Health and Mental Hygiene (DOHMH) by collaborating on data collection and interventions for adult lead cases and pesticide poisonings, both reportable conditions in NYC. We have also worked together in addressing asthma among adults, mercury exposure issues, and in identifying areas for future research.

BOH has participated in the Northeast Regional Coalition of Occupational Health States since this coalition was organized. This coalition includes representatives of health departments, Workers' Compensation boards, occupational health clinics, labor departments, and COSH groups from Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, New York and New Jersey. The Coalition meets annually in Connecticut for two days and reviews issues and shares experiences that may be relevant to all states.

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The development of a brochure geared towards patients about work-related asthma has also improved relationships with multiple organizations who assisted in the review of it, including state-based work-related asthma surveillance states, the American Lung Association of New York, the NYS Thoracic Society, medical care providers from community health centers in NYS and the New York Area Coalition for Health Information Access. The American Lung Association of NY and the NYS Thoracic Society agreed to endorse the brochure. The NYS Thoracic Society also distributed copies of our Occupational Lung Disease Registry (OLDR) brochure at their annual meeting.

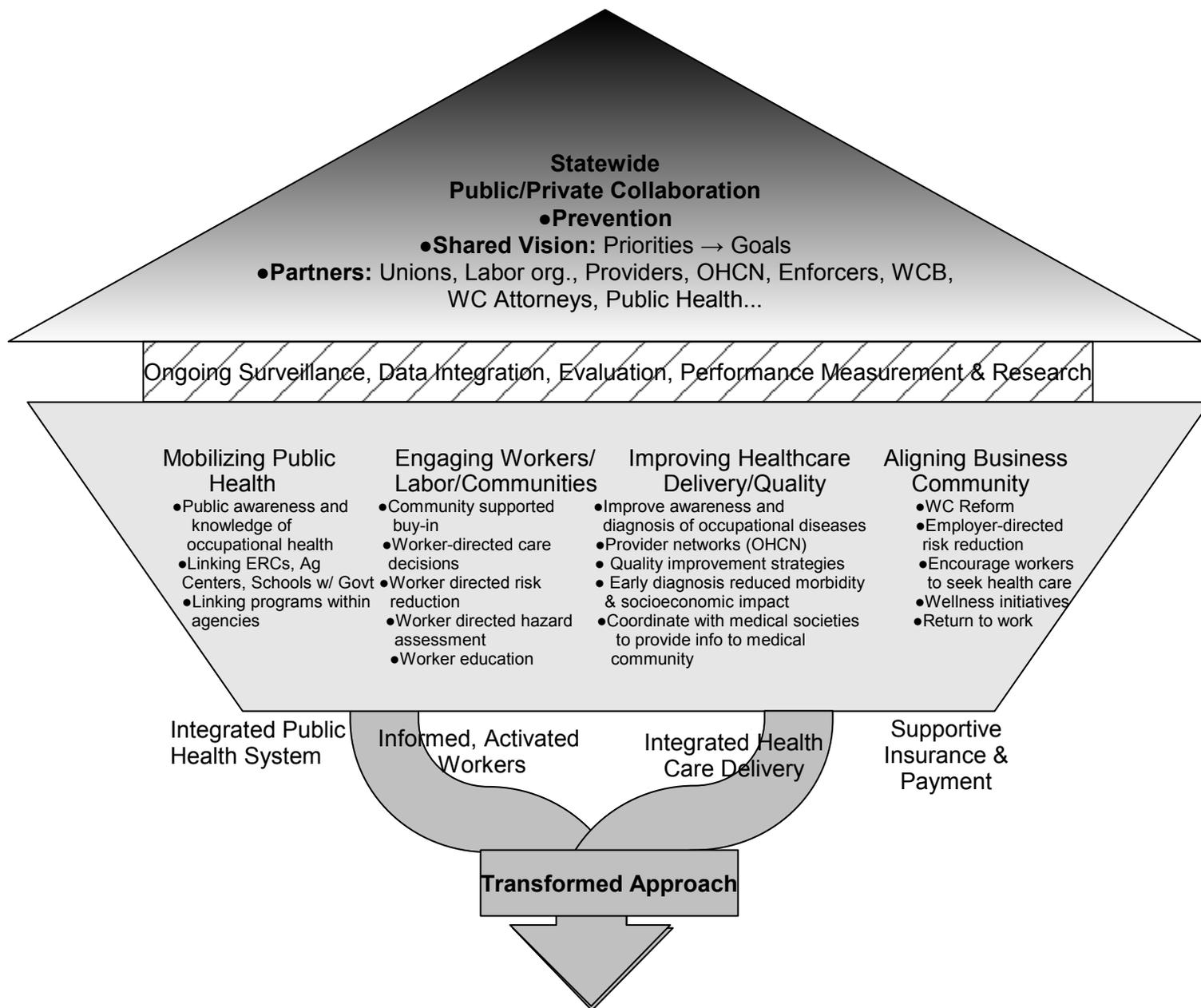
Dr. Gelberg assisted in organizing the 2008 and 2009 annual CSTE meetings. This involved planning a full-day occupational health workshop on topics of interest to state-based surveillance programs. These topics included the implications of electronic health records for occupational injury and disease surveillance and prevention; using social marketing to create change; and labor perspectives on occupational health. In addition, these meetings were used to incorporate occupational and environmental health topics focusing on use of the environmental public health tracking network for occupational indicators, discussing the environmental and occupational health issues associated with Hurricane Katrina, and identifying the public health consequences of climate change.

Staff from BOH meet quarterly with the OHCN. These meetings focus on occupational health issues being encountered by the clinics including emerging issues. This interaction allows the front-line medical practitioners to share information about interesting cases, outreach efforts, and provides a forum for discussion of topics of common interest. The clinics are community-based, each with an Advisory Board that includes members from business, labor, community organizations, government agencies, and health professionals. These boards can act as liaisons to target populations; therefore, topics discussed during the meetings can be shared with their advisory boards to allow for further outreach into the community.

Being that there is limited funding for occupational health and safety efforts, multiple groups trying to achieve similar goals of education and prevention, and a lack of integration of activities; there is the need to effectively collaborate with partners to eliminate duplication of efforts, missed populations and non-cohesive messaging. As part of the process of developing a shared vision and mission across the various stakeholder groups, BOH, with permission from the American College of Physicians, modified the MacColl Institute for Healthcare Innovation's "Framework for Creating a Regional Healthcare System". This framework was developed in 2006 with the goals to improve the quality of care and outcomes across a population and to reduce the costs of care for that population through waste reduction, outcome improvement and greater administrative efficiency. Input into a version of this model for occupational health was received from the OHCN and from the Scientific Working Group for Occupational Health Surveillance, describing the integration of the various stakeholders. This model serves as the basis for the approaches to integrating the BOH's work with the rest of the occupational health community in NYS.

Since 1995, the NYS Workers' Compensation Board has been upgrading its electronic data systems significantly enhancing the occupational injury and illness data. In 2003, the data system was redesigned to utilize the current ANSI standard Occupation Injury & Illness Classification System (OIICS), with an on-line coding system. Information on number of claims with money moving can now be provided, while the previous system only allowed statistics to be generated on those claims that were closed. NYSDOH receives work-related fatality information from the Workers' Compensation Board on a periodic basis and has received information on OHI #5 (Amputations Filed with the State Workers' Compensation System) and #8 (Carpal Tunnel Syndrome Cases Filed with the State Workers' Compensation System) for cases with money moving. BOH and the Workers' Compensation Board are

exploring other activities for data collaboration with a pending Memorandum of Understanding.



Raising Awareness of Occupational Health Issues

BOH also engages in a number of activities to share information with the general NYS community. Since 2004, a proclamation has been read on the NYS Legislative floor declaring the second Tuesday in March, Occupational Health Awareness and Outreach Day. The day promotes education and prevention efforts highlighting health and safety on the job, as well as working condition concerns of many workers across the state. It is celebrated annually with a joint press release from the NYSDOH and the NYS Department of Labor, a press conference held by the OHCN, and with tables displaying occupational health information in the state government complex in Albany.

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BOH has continued to develop and disseminate materials to promote awareness of occupational diseases and injuries and prevention strategies for such, among workers, employers and health care providers in NYS. Brochures have been developed describing the NYS Occupational Health Clinic Network for [workers](#) and [businesses](#). New graphics were added to a brochure titled “[Is Your Asthma Work-related?](#)” targeted to workers based on reviewers’ responses. This has been shared with the regional asthma coalitions, the NYS OHCN, and has been provided at outreach tables hosted by the Bureau of Occupational Health. A [fact sheet](#) regarding occupational lung diseases has been developed and was disseminated to physicians identified through the Occupational Lung Disease Registry in Spring 2007. This fact sheet included information about reporting to the Occupational Lung Disease Registry along with interesting case reports. Nine hundred copies of the FACE FACTS sheets “Tree-Work Related Injury Facts” and “Vehicle Repair Facts” were disseminated to health educators and the local health departments across the state through the NYSDOH quarterly media packets.

The internet continues to be an effective, low-cost method for sharing information with key audiences. Therefore, BOH has worked to update and add new webpages. A new web page for the [Occupational Health Surveillance Program](#) was posted. Information on the indicators, and a priority index for occupational health issues is included on these pages. An analysis of data from 2000 through 2005 for the [Heavy Metals Registry](#) was completed and posted on the NYSDOH web site. The report “[New York State Occupational Health Clinic Network Report 1988-2003](#)” was posted on the NYSDOH web with an email alert to state partners.

BOH has worked on integrating occupational health and safety activities within New York using the NYS OHCN. A link was established with the Healthy Heart Program that resulted in training provided to the clinics on worksite wellness, and an RFA targeted to the clinic network and the rural health network to incorporate healthy heart priorities into worksite wellness programs in place by the clinics. Information about recent NIOSH and state-based surveillance activities have been shared with the NYS OHCN at the quarterly meetings. The NYS Asthma Surveillance Summary Report includes a chapter on Work-related asthma.

### Heavy Metals Registry

Data from the Heavy Metals Registry (HMR) is constantly being reviewed and utilized for prevention efforts. An analysis of the lead data from 1994 through 2006 was published in *Public Health Reports*. Results of that analysis showed elevated blood lead levels among target shooters and residential remodelers; therefore, further analyses were conducted specifically on these populations and information on lead exposure among target shooters was published in the *Archives of Environmental and Occupational Health*. Simultaneously, an [Aim at Lead Safety](#) outreach campaign was initiated which provided education in the form of fact sheets, posters and brochures to shooting ranges throughout NYS about methods to limit exposure to lead. In order to target residential remodeling activities, training programs were provided to 1,257 municipal code enforcement officers statewide regarding lead exposure; over three-quarters of the survey respondents indicated that the training course both improved their knowledge of lead and their ability to identify hazards, while 60% of code enforcers indicated that the training course changed the way they addressed lead during a housing inspection. Three separate trainings were also provided to hardware store employees, and information was published in *The Journal of Light Construction and Rental Housing*. In addition, a study by BOH published in the *Morbidity and Mortality Weekly Report* showed that 14% of children with elevated blood lead levels in NYS were related to renovation, repair and painting activities in their homes.

Besides the work with lead, there has been a large increase in the number of adults with reportable

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levels of arsenic and mercury in blood. On average, the number of reported adults tested for arsenic has remained around 50 until 2000 when 109 adults were reported. This increased to 209 adults in 2002 and although it has dropped slightly in the past few years, remains high with 178 adults reported in 2008, 241 reported in 2009 and 129 adults reported through June of 2010. Over 92% of the reports received were due to organic arsenic “fish arsenic” exposure - a relatively nontoxic form of arsenic; therefore, an alert was posted on the NYS Health Provider Network in March 2009 advising healthcare providers who are conducting biomonitoring for arsenic to ensure the patient abstains from all forms of seafood consumption for at least 48 hours prior to the test to avoid false positive results. As of June 2010, there has not been a reduction in the number of individuals with reportable arsenic levels, indicating that further outreach to healthcare providers needs to be conducted. Similarly, there were on average less than 100 people reported each year from 1993 to 1998 with blood mercury tests of 5 ng/mL or above; this has increased to almost 4,600 people reported in 2008. Although the number of adults reported in 2009 (almost 2,900) and through June 2010 (almost 1,200) has dropped, the number of adults reported are still high. In-depth analyses of the interview responses, focusing on fish consumption, have been conducted and was presented at the 2008 CSTE meeting and has been submitted for publication. It has also been shared with the US Environmental Protection Agency (EPA) and the NYCDOHMH to assist with their outreach efforts.

A case report was used to initiate an investigation of worker exposure to lead during metal recycling operations. Working with the Institute of Scrap Recycling Industries, Inc., a mailed survey was conducted with 101 companies and on-site evaluations were conducted with eight of those companies. One of the major results from this project included finding significant lead exposure when painted and unpainted metals and new steel were torch cut. This information was published in both the *Journal of Occupational and Environmental Hygiene* and as part of the March 2009 NIOSH E-news. It was also identified that there was a need for information about worker protection from lead exposure to be available to a Portuguese speaking population. Therefore, the NYSDOH brochures “Lead on the Job: A Guide for Workers” was translated into Portuguese.

BOH recently conducted a full program evaluation for the HMR and is in the process of implementing changes to the registry. The first of these changes involved lowering the blood lead level of those interviewed. Based on recent research about the toxicity of lead at low dose, NYSDOH dropped the interview levels in March 2009 from 25 µg/dL to 10 µg/dL and above for all women and all 16 and 17 year olds; and interviews all others with blood lead levels of 15 µg/dL and above. Since NYS is currently the only state to be conducting adult interviews and follow-up at these low levels, an evaluation was conducted and presented at the annual Adult Blood Lead and Epidemiology and Surveillance (ABLES) meeting in 2010 to help guide the national program and other states regarding the utility of this endeavor. Other changes to the registry include sending letters advising pregnant women to have their newborns tested at birth; redesigning the interview to computer modules allowing the interviewer to provide appropriate educational information based on responses received; raising the interview level to 25 ng/mL for blood mercury exposures and providing a fact sheet to those reported with lower blood mercury levels; and working more directly with the local health departments on case management.

The HMR database was redesigned to an interactive system which is updated daily. Both blood lead and other heavy metal reports are received electronically from laboratories daily, and are added to the database each morning. All surveillance and follow-up information is available to staff instantly as changes and updates occur. This greatly enhances the ability of staff to determine if a report has already been received by BOH; correct report and case data immediately; make new information directly available to all staff; uncover and correct errors, add new employers, assign cases to interviewers and

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track the progress of cases with elevated test results, daily. The Industrial Hygiene staff now has easy on-line access to up-to-date information in support of their employer targeted follow-up and intervention efforts. They also have weekly and monthly reports generated listing high and low values for each company along with the number of tests and their mean and median values. Finally, interview questionnaire information is now part of the database and immediately available for follow-up and research activities.

### Occupational Lung Disease Registry

Recognizing the importance of being able to track cases, conduct analyses, and identify appropriate industries for potential hazard-based interventions, a new database for the Occupational Lung Disease Registry (OLDR) was developed internally. This fully relational database management system contains all the information from both the physician's reporting form and the interviews, as well as all sources of reports and follow-up conducted. This database can track reporting of multiple conditions for each person, multiple primary and consulting physicians, and multiple causative agents. Letters can easily be generated requesting more information or thanking the reporter. Staff can also easily track the status of requests for further information, and identify physicians in NYS who are seeing cases of occupational lung diseases. Although NYSDOH was not a NIOSH funded Occupational Respiratory Disease state, we recognize the importance of sharing data and assisting with national surveillance endeavors. The application supports automatic data extraction for the NIOSH Respiratory Disease Surveillance System, and conforms to the published coding definitions. This application is based on the same technological foundations as the successful SPIDER software developed for Pesticide Poisoning Surveillance.

Beginning in 2006, NYS Behavioral Risk Factor Surveillance System (BRFSS) respondents who had lifetime asthma were eligible to participate in the Asthma Callback Survey. In addition to the two work-related asthma questions previously asked on the BRFSS ("Did you ever tell a doctor, nurse, or other health professional that your asthma was related to any job you ever had?" or "Were you ever told by a doctor, nurse, or other health professional that your asthma was related to any job you ever had?"), four questions were asked regarding exposure to chemicals, smoke, fumes, or dust in their job. The four questions were: 1) Was your asthma caused by chemicals, smoke, fumes or dust in your current job?, 2) Is your asthma made worse by chemicals, smoke, fumes or dust in your current job?, 3) Was your asthma caused by chemicals, smoke, fumes or dust in any previous job you ever had?, and 4) Was your asthma made worse by chemicals, smoke, fumes or dust in any previous job you ever had?. Data was analyzed for 2006 and 2007 and estimates varied between the individual questions. Thirteen percent of the lifetime asthmatics and 16.9% of the current asthmatics had a discussion with their health care professional regarding WRA (same questions asked in BRFSS). An affirmative response to any of the four exposure-related questions resulted in 37.5% of lifetime and 44.5% of current adult asthmatics having workplace exposures that caused or made their asthma worse. The discordance between the estimates indicate that many adult asthmatics do not discuss workplace triggers with their health care providers indicating a need for better communication between patients and physicians regarding occupational exposures.

Through our partnerships with the NYSDOH Public Health Information Group and the State Asthma Plan, BOH published a chapter on work-related asthma in the NYS Asthma Surveillance Summary Report in both 2005, 2007 and 2009. Data sources for information on work-related asthma in this report came from the OLDR, OHCN, hospital discharge data, and BRFSS. The report is widely distributed to approximately 1,000 individuals and organizations in NYS.

An educational brochure on work-related asthma geared towards adult patients with asthma was

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developed. One purpose of the brochure is to prompt adults with asthma to consider whether their workplaces are causing or exacerbating their asthma symptoms. A second purpose is to provide recommendations on how patients can assist their health care providers in determining if their asthma might be work-related. The brochure was distributed to community health centers in New York, physicians identified through hospital reports as being in attendance of a patient with WRA, and at health fairs and other events.

Various methods were used to identify hospitals and physicians who may have been in attendance of a patient with an occupational lung disease but not reported to the OLDR. Outreach was conducted to these hospitals and physicians to inform them of the reporting law and how to report.

An evaluation of the OLDR functions was conducted. The evaluation resulted in changes in how reports are collected and processed. In addition, the accuracy of identifying patients with occupational lung disease through medical records departments was evaluated. The OLDR is now collecting medical records for all hospital reports of work-related asthma, as well as reports of allergic alveolitis and respiratory conditions due to chemical fumes and vapors.

The Occupational Lung Disease web-site was redesigned and continues to undergo updates in order to provide the most accurate and user friendly site. The web-site provides information to both the physician and the patient/worker. Physicians can find information on the OLDR, including the reportable conditions and how to report; they can download the Physician Reporting Form; and learn about different resources available for physicians on diagnosing and treating of occupational lung diseases. Patients/workers can use the site to learn about occupational lung diseases including symptoms, diagnosis, prevention and treatment.

Industrial Hygiene staff was available to answer questions and make recommendations to both the individual patient and companies. Depending on the circumstances these interventions could have involved a phone consultation, written recommendations, and/or a site visit. Some examples include:

- Registry staff identified 27 cases of silicosis reported to the OLDR who were former long time employees of a manufacturer of porcelain clay insulators. Interviews conducted with the cases revealed that they had frequent unprotected or poorly protected exposure to silica dust over an extended period of time during their course of employment with this company. Registry staff contacted the safety and health coordinator of the company about actions the company can take to control and reduce workers' potential silica exposure during the manufacturing process. The company agreed to further evaluate work processes involving silica exposure and have consulted with an occupational physician and industrial hygienist. Staff also provided the company with written recommendations on steps the company can take to control and reduce future exposures. Information on the NYS OHCN was also provided to the company to assist them in setting up a medical surveillance program.
- Staff conducted a site visit at a food production facility, in response to a physician's report to the OLDR about an employee. The employee had worked at the facility for 12 years in a variety of jobs including production line worker and sanitor (cleaning the production machinery). The employee is currently out of work on disability due to severe pulmonary distress and is currently being seen at the Central New York Occupational Health Clinical Center. The site visit included a meeting with representatives from company's corporate office, plant management, and environmental consultants. A walk-through survey of the facility was conducted and area and personal air samples were collected to characterize potential exposure to flavorings that have been linked to severe lung disease in popcorn plants.
- Two employees were reported to the OLDR by an emergency department after being

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hospitalized overnight for an exposure to a stone sealant at work. The interviewed employee reported that he was using the following PPE: half-face air purifying respirator, Tyvec coveralls, rubber gloves, boots and hard hat. Within minutes of applying the sealant to the stone exterior of the casino, both employees complained of sore throats and difficulty breathing. Both employees were taken to the emergency department and were kept overnight for observation. The interviewed employee reported significant lung discomfort and filed a worker's compensation claim after returning to work. Staff plan to contact the Oneida Indian Enterprises to discuss the work practices of the Turning Stone Maintenance Department. Staff contacted the company to discuss the work practices of the maintenance department. The company discontinued the use of the sealant.

### Pesticide Poisoning Registry (Expanded Program)

BOH conducts surveillance of pesticide poisonings in NYS using the NYS Pesticide Poisoning Registry (PPR). This program receives reports from physicians, health facilities and clinical laboratories and offers timely follow-up and intervention in various exposure situations. The PPR has been an integral part of surveillance activities developed to identify and characterize possible health effects related to West Nile Virus mosquito control programs in NYS.

In order to improve reporting, physician outreach has been targeted to specific populations that are most likely to encounter pesticide poisonings. These are migrant worker clinics, emergency room physicians, hospital risk managers and urgent care facilities. The outreach materials included informational brochures, telephone sticky notes with the NYS PPR toll-free phone number, and a printed copy of EPA's "Recognition and Management of Pesticide Poisonings". An educational PowerPoint presentation was also developed for ER staff. The original plan for NYS PPR reporting was to use the 1-800 number exclusively; it was believed that this would be faster than completing any 'paperwork'. In general, this has proven true, but a number of perhaps surprising glitches have appeared that resulted in the development of a faxable form. The form can be completed while the chart (and sometimes the patient) is present, and the required information is clearly indicated.

NYSDOH is working to educate health care facilities that per the reporting requirement, any medical staff may report a pesticide poisoning to the NYS PPR. The intent is to take the burden off of the physician in an effort to increase reporting. Currently the reporting is voluntary and sporadic.

NYSDOH has worked with the five Poison Control Centers in NYS to obtain pesticide poisoning cases. This was conducted in cooperation with the Department's 'Real Time Disease Detection' system under our Emergency Preparedness program. This allows NYSDOH programs to interact directly with the National Poisoning Data System. An alert is provided to BOH by email to inform when a case meeting the defined pesticide poisoning parameters is met.

Several reports to the PPR have triggered special outreach efforts commensurate with the sentinel event model.

- In August 2005, the PPR received a report of a hospitalization due to exposure to Scourge being applied by helicopter. This was part of public health response to a case of Eastern Equine Encephalitis. The PPR was unable to interview the affected person due to his poor medical condition, so hospital staff provided information regarding signs, symptoms and diagnosis. PPR staff contacted the regional NYS Department of Environmental Conservation (DEC) office, who was able to provide detailed information about the spraying. They were also able to provide the actual track over the ground of the helicopter, which was equipped with a continuous GIS recorder, including those sections of the track when the spraying apparatus was

on. PPR staff also contacted the county health department, who verified that public had been alerted to the location and time of spraying, which had proceeded according to plan. The death of the hospitalized person triggered a criminal investigation. As part of this, the PPR provided investigators with a history of the event and reporting. The evidence indicated that the spraying had proceeded as planned, and that the helicopter had not sprayed beyond the bounds of the target area. This did not rule-out possible drift, although weather conditions were commensurate with product label instructions. The patient had symptoms that could be attributed to the product used, but the case report indicated that the onset of symptoms and hospitalization occurred 3 days after the spraying. Thus the onset of illness was not temporally related to the exposure. Autopsy results also eventually ruled out the pesticide application as a cause of death. This incident highlights the ability of the PPR to coordinate in depth case follow-up with multiple stakeholders.

- The PPR received two reports of poisonings in botanical garden greenhouses where exposures were due to a number of factors unique to greenhouses: enclosed space, constricted walkways, and special ventilation / air handling requirements. Industrial hygienists within BOH visited a major botanical garden and a number of commercial greenhouses to observe pesticide application procedures and practices. Several hazardous conditions were identified:
  - Spraying often occurred at night to avoid times when day workers or the public were present; this required supplemental lighting which was often inadequate to avoid trips and spills.
  - Spraying was often overhead which caused pesticides to drift back down on applicators.
  - Full body and full face protection was needed. Additionally, workers needed to use duct tape to seal openings between pieces of protective equipment; e.g., gloves and coveralls.
  - Spraying equipment was usually gasoline powered, and compressors were inside the greenhouse resulting in elevated levels of carbon monoxide.
  - In addition, most greenhouses were not providing suitable facilities to change or launder clothing before workers went home.

In 2008, these findings were consolidated into “*Health and Safety Recommendations for Indoor Pesticide Applications in Horticultural Settings*” which was distributed to commercial greenhouses statewide and made available on the NYSDOH web site.

- Data from Poison Control Centers in 2006 revealed an increase in the number of serious poisonings due to the use of illegal pesticides. Primary among these was ‘*tres pasitos*’, a street name for aldicarb, a rat poison. Aldicarb is registered for professional applicators only, and not for use in homes. However, some immigrant groups are familiar with its common use in their home country. It is available from ‘entrepreneurs’ who repackage it in small plastic bags and sell it on the street. In one case, PPR staff, with information provided by the mother of a poisoned child, worked with the NYC DOHMH and the NYC Department of Environmental Protection enforcement staff to apprehend the vendor at his normal sales location at a Bronx subway entrance. This case highlights the ability of the PPR to obtain important information regarding illegal activity. Since information gathered by the PPR is protected, identities are protected and individuals are not at risk to retaliation.
- In 2007, an explosion in a Brooklyn bakery injured 6 persons, mostly due to flying glass. The surprising cause of this explosion was the simultaneous use of 32 ‘bug bombs’. The propellants in these products, properly called total release foggers (TRF), are highly flammable. Product labels typically stipulate that all sources of ignition should be removed or extinguished before use. They also state the area that one container can treat. In this specific case, however, the product was not registered for sale in NYS; the label was entirely in Chinese, and the number of canisters used greatly exceeded the recommended number. In a commercial establishment, application of pesticides must be done by a licensed applicator, which was not the case in this

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incident. Since this incident was not a poisoning *per se*, NIOSH was contacted to determine if it should be included in case reports. NIOSH determined that since the hazard was definitely related to pesticides, it should be included. Contact with other state pesticide registries using the list server revealed that all states had reports of TRF explosions, and that this was a fairly frequent event that should be addressed through further program action. Case reports were gathered from all states with pesticide poisoning registries. These were summarized and reported in the *Morbidity and Mortality Weekly Report* and reprinted in the *Journal of the American Medical Association* in 2008. In NYS, as with other states, new regulations regarding use of TRFs were proposed. The PPR provided additional guidance to the NYSDEC as to the nature and extent of the problem. Recommendations included several possibilities: the amount of product in one can should be smaller; the label directions need to emphasize the explosion hazard more prominently; the product should only be sold in a single individual can, not 6-packs; and, perhaps, only be used by licensed applicators. This event demonstrates the use of PPR data to inform public policy and provide regulatory guidance.

Educational outreach activities included distributing PPR materials to pesticide applicators attending a recertification training event; PPR staff providing information on symptoms associated with pesticides exposure and what applicators can do once an exposure is known to a Pesticide Safety Education applicator certification training sponsored by Cornell Cooperative Extension; a PowerPoint presentation was developed to supplement material sent to ER staff; and a CD-ROM was developed for physicians and physician assistants who may treat patients with suspected or confirmed pesticide poisoning containing a PDF version of the EPA “Recognition and Management of Pesticide Poisoning”, and the ER Power Point presentation developed in 2007. In addition, an article was written geared towards structural applicators; a landlord-tenant Guide to Pest Management was developed; and the total release fogger fact sheet was updated.

### Fatality Assessment and Control Evaluations (Expanded Program)

The NY FACE program has focused its intervention efforts on the following high risk populations: young workers under 25 years of age, older workers over 60 years of age, foreign-born workers, and workers who are employed in construction or agricultural industries. NY FACE also assists NIOSH FACE in investigating its targeted causes of death. NIOSH FACE currently targets the deaths of youths under 18 years of age, Hispanic workers, deaths associated with machinery, and street/highway construction work zone fatalities.

Besides the routine intervention activities, NY FACE also conducts Priority Industry Initiatives (PII). PII are projects designed to target a specific sub-population within a high risk population for intervention. These projects, with clearly defined action plans, time lines and outcomes, are carried out in close collaboration with partners representing the target population. NY FACE conducted two PII: Tree Work Injury Prevention Project and Ski Areas of New York (SANY) Project. Through these initiatives, NY FACE intends to generate maximum impact on the target populations and achieve clear defined measurable injury prevention outcomes.

NY FACE has received 476 reports of occupational fatalities between July 2006 to June 2010. During the initial stage of the program, NY FACE dedicated a tremendous effort and significant amount of budget on establishing a comprehensive system of case identification, verification and confirmation to lay a solid foundation for intervention. Over the years, the NY FACE surveillance network has fully developed and matured; it now provides timely, accurate and complete case information for intervention.

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Partnerships are critical for a successful surveillance program. Over the years through NY FACE intervention efforts, partnerships have been formed with US Department of Labor Wage and Hour Division, OSHA, NYS Department of Labor, Public Employees Safety and Health, the NYS Association of County Coroners and Medical Examiners, the NYSDOH Bureau of Emergency Medical Services, and the NYS Workers' Compensation Board. To facilitate agricultural fatality case identification, NY FACE has an arrangement with NYCAMH to share its information on all agricultural fatalities and serious injuries. A good working relationship has been established between NY FACE surveillance staff and the source individuals and organizations, such as coroners/medical examiners, NYS sheriffs and NYS Police. Due to the persistent outreach efforts and partnership development, NY FACE has established a comprehensive surveillance system that provides timely, accurate and complete occupational fatality data.

In 2008, NY FACE developed a new electronic database in Access. The original database only stored the case information entered from the paper data intake forms; it had no data processing capability. NY FACE relied on the Census of Fatal Occupational Injuries (CFOI) data for identifying and prioritizing high risk populations. CFOI tabulates the case data following a rigid coding system that does not offer enough flexibility for intervention purpose. CFOI also has an eight month delay in releasing its official data; the delay may deter efforts for timely identification of a target population. The new database can compile and analyze data and generate summary reports on predetermined target populations and industries. These features enhance NY FACE's ability to timely and accurately identify priority targets and increase program efficiency.

Through July 2010, NY FACE has initiated 44 cases (excluding those cases that were initiated but later canceled due to a company refusal or lack of a company response) and completed 42 investigations with the investigation reports posted on the NYSDOH website. The investigation reports have been shared with all individuals and organizations who provided assistance during the investigation or expressed interest in the FACE cases, as well as with other individuals or organizations including emergency medical services, OSHA, Sheriff's offices, State Police, labor unions, equipment manufacturers, trade associations, workers compensation carriers and the NYS OHCN.

Specific product impact evaluation was conducted with the following results:

- As a subpart of our evaluation of the tailgate training for mobile equipment operators, NY FACE received 12 completed surveys completed during the pilot training session. 91.7% of the workers stated that the training program was either excellent or good and they were either very likely or somewhat likely to change some of their work behaviors based on what they had learned in the training. The evaluation showed that the training achieved an intermediate goal of increasing the trainees' awareness of occupational safety issues.
- Following the dissemination of the "Occupational Fatalities in NYS 2005-2006 Update", NY FACE conducted a survey to collect feedback from the recipients. Twenty-one completed the survey: 86% considered the information was clear and easy to understand, 71% considered the information was relevant to their work, 52% reported that they were able to use the information for work, 86% would recommend this report to others and 81% were interested in receiving more information on occupational fatalities in NYS.
- NY FACE collaborated with NY Parks to evaluate the quality of the GOL training and the usefulness of the manual "Logging Safety-A Field Guide" developed by NY FACE. NY FACE developed pre- and post-survey questionnaires for the survey. Sixty-one NY Parks trainees completed the pre training survey and 73 finished the post training survey. The evaluation showed that trainees gained critical safety knowledge through GOL training and studying the manual during the training. The trainees showed an across the board increase in logging and

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chainsaw safety knowledge after the training. 99% agreed that the NY FACE logging booklet helped them understand the subject better; among them 62% strongly agreed. The evaluation clearly demonstrated that the training was effective in increasing the trainee safety knowledge and the NY FACE logging booklet helped the trainees in gaining the knowledge.

NY FACE uses the outcome evaluation method to assess the overall impact of the program activities. NY FACE identified the following program outcomes that can be measured either qualitatively or quantitatively: increased knowledge of fatal injury risk and causal factors, increased injury prevention partners, increased injury prevention products, and increased utility and implementation of the products.

*1) Increased knowledge of fatal injury risk and causal factors.* Through conducting case investigations, NY FACE made significant contributions to the overall injury prevention knowledge by sharing its findings with stakeholders and partners:

1. NY FACE report “Construction Laborer Dies after Falling off Collapsed Precast Concrete Floor Slab” was featured in the November News by PP Construction Safety (PPCS) website in Great Britain (<http://www.ppconstructionsafety.com/newsdesk/2009/11/03/us-fatal-accident-investigation-reports/>). PPCS is a health and safety information and consultancy service. PPCS commented that the NY FACE report provided more detail and insight than similar reports available in Great Britain and “will be interest to all those involved with the design and installation of precast concrete floors”.
2. In responding to a surge of crane fatalities in NYS, NY FACE investigated a crane fatality and developed a new partner in the crane safety field. During the investigation, we consulted with the training director for the apprenticeship program of the International Union of Operating Engineers (IUOE) Local 106 for technical assistance regarding crane boom disassembly operation. Through the training director, NY FACE coordinated a full day crane training session. Twelve OSHA safety compliance officers from the Albany and Syracuse area offices along with the NY FACE staff attended the training session. The attendees appreciated the quality and the timeliness of the training.

*2) Increased NY FACE injury prevention partners.* In the early stage of the program, our partners were mainly state or federal governmental organizations. Over the years, through conducting extensive outreach and intervention activities, NY FACE had collaborated with many individuals and organizations representing a wide range of industries, professions and geographic locations in NYS. The following is a list of current NY FACE partners: OSHA, NYS Public Employees Safety and Health, NYS Department of Labor, NY Parks, NYS Workers Compensation Board, Capital Region Safety and Health Council, American Society of Safety Engineers, Youth Construction Initiative Program, Ski Areas of New York, NY Logger Training, Operating Engineers, Game of Logging, and the OHCN.

*3) Increased injury prevention products.* Through June 2010, NY FACE has developed and published a total of 74 injury prevention, education and training products including tailgate training manuals, occupational fatality alert, FACE Facts, FACE reports and occupational fatality bi-annual reports.

*4) Increased utility and implementation of the products.* Overall, NY FACE products have been increasingly recognized and used by safety and health professionals, training organizations, labor unions, trade associations, workers’ compensation carriers, and insurance companies.

- NY FACE report “Logger Crushed while Felling a Tree” was used by the State University of New York at Morrisville to develop a logging field manual.

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- NY FACE reports and tailgate training manual were used for developing training materials for eight-hour Hazardous Waste-site Operations and Emergency Response annual refresher training for the technical and field staff of the NYSDOH Center for Environmental Health.
- “Garage Door News” contacted NY FACE with a request to reprint the NY FACE report “Maintenance Mechanic Killed when Improperly Installed Overhead Garage Door Topped Scissors Lift”.
- Safteng.net a worldwide network for safety professionals, added a link to the NY FACE web site. Safteng.net did a confined space safety week and web subscribers were directed to NY FACE web site for examples of confined space accidents.
- The Western Area Safety Representative of the North Carolina Industrial Commission contacted NY FACE for permission to use the following NY FACE products in his training classes: FACE report “Truck Driver Run Over by Trash Compactor at Municipal Landfill”, FACE Fact Sanitation Fatal Injuries, and tailgate training “Preventing deaths and injuries to public workers while working around mobile equipment” for safety training. The training course was held in Hendersonville, NC with 19 trainees.
- The Environmental Health and Safety Director for a nationwide paint manufacturing company used the FACE report “Worker Fatally Injured by a Steel Blade while Cleaning a Dough Machine” in developing the company lockout/tagout program and employee training materials.
- NY FACE assesses public interest in its products as an indicator of program impact, through tracking internet traffic to each product webpage by counting web views. A web view is a visit to a product webpage that lasts for at least 30 minutes. This is a more accurate count in contrast to web hit count that usually does not exclude transit traffic. Through June 2010, the average total monthly views of all NY FACE products was 5,400. NY FACE will continue to monitor public interests and demands through tracking webpage views.

### *Tree Work Injury Prevention Project*

Logging has consistently been one of the most hazardous occupations in the United States. In 2008, NY FACE noticed an increase in worker deaths associated with logging, tree trimming, and cleanup. The heightened demand for fire wood due to increased heating fuel costs may have prompted more tree work activities. Weather was another contributing factor: there were major winter storms during early winter and late spring prompting more post-storm cleanup. NY FACE also became aware of increased logging safety training activities and public interest in logging safety materials.

NY FACE was initially contacted by the NYS Office of Parks, Recreation and Historic Preservation (NY Parks) for logging injury prevention materials. NY Parks was providing its field staff with logging safety training through the Game of Logging, a logging training organization. The Game of Logging training is comprised of hands-on exercises and field demonstrations; no written training materials accompany the training. NY FACE proposed to develop a product that could be used either as a training tool accompanying Game of Logging training or a stand-alone user manual for self study and training. Rather than starting from scratch, NY FACE selected the “Logger’s Safety Field Guide”, a booklet developed by West Virginia FACE, as a model for the new product. NY FACE had previously collaborated with New York Logger Training, another training organization, in delivering 500 copies of the WV FACE booklet to vocational students and received very positive user feedback. NY FACE attended the NY Parks Game of Logging training courses to learn specific safe practices and injury prevention measures and incorporated the information into a new logging safety manual “Logging Safety – A Field Guide”.

NY FACE collaborated with the NY Parks to pilot test the draft manual that was used as teaching material accompanying the Game of Logging training. We developed pre- and post- survey

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questionnaires to assess the impact of the training and the manual as a training tool. An overwhelmingly percentages of NY Parks trainees (98.6%) felt that the manual helped them to understand the training content. NY FACE also assessed public interest in the product through outreach activities at popular events such as Woodsman's Field Days, the major event for tree related industries in NYS with more than 40,000 visitors. NY FACE displayed the draft manual at an informational table. Event attendees expressed great interest in the manual and support for NY FACE efforts. One gentleman said to the NY FACE staff member: "Thank you for doing this. I only wished that you had done it earlier; my son was one of your (fatality) numbers." More than 100 people signed up for the logging manual: parents signed up for their sons and daughters, wives for husbands and friends for friends.

NY FACE secured a partnership with Game of Logging which agreed to use our logging manual as its classroom training tool. Game of Logging trains more than 800 people a year from varied backgrounds ranging from loggers, foresters, arborists, groundskeepers, property owners, farmers and landscapers, to public works, highway department and parks employees. Game of Logging agreed to assist NY FACE in disseminating the manual to its trainees and in evaluating the impact of the manual. NYCAMH considered the manual an excellent tool for agricultural workers and plans to disseminate the manual through its network.

NYSDEC awards contracts for harvesting State forests. These contracts range from less than \$500 (firewood sale) to over \$100,000. While NYSDEC required logging safety training for contractors holding contracts valued \$500 or greater, it did not require logging safety training for the contracts less than \$500. Following the NY FACE recommendations, NYSDEC agreed to add language in contracts less than \$500 to require the contractors to receive, read and understand *Logging Safety: A Field Guide*. By requiring the contractors holding contracts less than \$500 to study the Field Guides, NYSDEC helps to deliver the critical injury prevention knowledge to those contractors who need the knowledge the most. The requirement is now effective statewide.

### *Ski Areas of New York Project*

NYS has the largest number of ski centers in the United States with upwards of 16,500 seasonal employees (85% of the payroll in the winter season). Most of these ski mountains are located in economically depressed areas of the state and workers are mostly from low income backgrounds. The ski industry has a reputation for tolerating risk taking behaviors and not welcoming government involvement. According to the BLS, employees of ski facilities in the U.S. have the highest non-fatal injury rate of 16.5 per 100 workers, four times the average injury rate of private industries. NY FACE received fatality reports on two ski facility employees in 2007 and 2008. NY FACE established a partnership with Ski Areas of New York, Inc., an organization representing the ski facilities in NYS, to develop injury prevention measures and promote wide spread adaptation of these measures among SANY members.

High risk operations in a typical ski facility include snowmaking, lift operation and maintenance, ski patrol and ski school. NY FACE first targeted the snowmaking operation since workers suffer more serious injuries while performing snowmaking related jobs. NY FACE visited four ski facilities of varied sizes. During these site visits, we collected valuable injury prevention information, established excellent relationships with the facility owners and managers and laid a solid foundation for future cooperation. Currently there are no comprehensive prevention training materials for snowmaking activities, even on the national level. It is likely that the materials created by NY FACE will have direct transferability to other FACE states as well as to other states that have ski centers and snowmaking activities.

*Product Development and Dissemination*

The following products were developed by the NY FACE program:

- “Preventing Fatal Injuries among Animal Handlers in NYS” to alert farmers, veterinarians and other animal service workers of the hazards associated with handling animals. NY FACE received input from partners in agricultural injury prevention such as NYCAMH during the course of developing the alert.
- “Safety Information Available from NYSDOH” was published in the Fall 2006 issue of *Wasteline*, the quarterly newsletter of the NYS Association for Solid Waste Management. The article described the FACE program and advertised the availability of health and safety resources through NY FACE.
- NY FACE collaborated with the NYS Arborists, International Society of Arboriculturists Chapter to publish the full NY FACE report “Guatemalan Tree-Service Worker Killed when Pulled into a Brush Chipper” along with NY FACE Facts “Tree-Work Fatal Injury Facts” in *Shade Tree Notes*, the organizations’ newsletter. The newsletter was distributed to a membership of over 600 arborists.
- NY FACE partnered with NYCAMH and New York Emergency Disaster Education Network to disseminate Micotil 300® injury prevention information. Micotil 300® is an animal antibiotic and can cause serious health effects including death through accidental contact. NYCAMH developed an article on Micotil 300® based on the NIOSH Publication. The article was published by *Country Folks*, a weekly newspaper that circulates to 47,000 agricultural readers in the Northeast. New York Beef Producer Association also published the article in a newsletter that was circulated to approximately 1,000 readers through member subscription and event distributions. The Micotil 300® alert was also provided to the Association of Executive Directors and shared with NYS farmers through the Extension educators.
- An article entitled “Snow Removal and Post-storm Cleanup Safety” was published on the March/April issue of bi-monthly magazine “*Talk of the Town & Topics*”. The magazine is published by the Association of Towns of the State of New York. The Association represents 932 towns and provides training programs, research and information services, technical assistance, legal services and insurance programs to member towns. The article discussed injury prevention measures during snow removal along with two case studies conducted by NY FACE.
- The monthly column FACEValue of the National Safety Council Magazine “*Safety+Health*” featured a NY FACE investigation report. The National Safety Council is a non-profit international public service organization that has members representing 18,600 companies with 8.8 million employees from a broad spectrum of industries in 33,300 locations around the world. Its mission is to educate and influence people to prevent accidental injuries and deaths.
- NY FACE fact sheet “Tree-work Fatal Injury Facts” was referenced by the Mortality and Morbidity Weekly Report article “Work-Related Fatalities Associated with Tree Care Operations - United States, 1992-2007”.

World Trade Center Responders Fatality Investigation Program (expanded program)

NYSDOH is the data collection center for fatalities occurring among World Trade Center (WTC) responders and volunteers. The study population included any fatality that occurred among individuals who responded to the WTC disaster including workers and volunteers at Ground Zero, the secure/exclusion zone, the morgue or waste stream corridor including the Fresh Kills landfill in Staten Island between September 11, 2001 and June 30, 2002 and died between September 12, 2001 and June 30, 2009. Because there was no central method to identify those individuals who responded to the WTC disaster, the case ascertainment for this project occurred through a variety of methods. Daily

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reviews were conducted of on-line newspapers in New Jersey, Connecticut, New York, and eastern Pennsylvania, and of national obituary search engines using key words such as “ground zero”, “WTC”, “World Trade Center” and “9/11”. Partnerships already established by NYSDOH including NYS police, NYS sheriffs, NYS ambulance services and fire companies, and coroners/medical examiners were expanded to assist in identifying deaths occurring among the study population. Outreach and education was provided to in-state and out-of-state groups about the WTC RFI project and about the need to provide information on any fatality that occurred to a WTC responder. These included groups that were currently involved with the medical monitoring, treatment or research of WTC responders, and attorneys involved in lawsuits regarding their clients deaths. Agreements were developed that allowed for data from FDNY, the WTC Health Registry, and the WTC Medical Monitoring and Treatment program to be shared with the WTC RFI program. A toll-free number and email account specific to this project was also established for reporting.

An attempt was made to collect a death certificate for every WTC responder, rescue worker and volunteer, who died since September 12, 2001 to confirm the death had occurred and to obtain causes of death. In states without public records, institutional review board approval was sought. A joint application was submitted to the National Death Index (NDI) with the WTC Health Registry allowing for them to share NDI identified deaths with the WTC RFI.

Interviews were conducted with the personal representative of the estate on all non-traumatic/non-suicide fatalities that occurred since January 1, 2006. Interviews were not conducted for deaths that occurred before January 1, 2006 since many family members would have been completing their grieving process, and the researchers did not wish to upset family members. Because the study began in 2006, this date was chosen based on the start of the project.

To better assess the health status of the decedent prior to their death, medical records from pertinent post-9/11/2001 clinical visits, employee health exams, and from any doctor visits up to two years prior to 9/11/2001 were obtained. Information on where to access medical records was obtained from next-of-kin and from location of death identified on the death certificate. Medical records were often not found for deaths occurring outside of a hospital. If an autopsy was performed, a copy of the autopsy results including toxicologic results and medical examiners’ notes was also obtained. Certain regions had restrictions on non-family members obtaining copies of autopsies.

Confirmation of WTC exposure was obtained by contacting employers, and secondary sources such as unions, employers, or other employees. Some companies were uncomfortable sharing information on their employees or volunteers, so this information was often missing. If the death occurred after January 1, 2006, then confirmation of WTC exposure could also be obtained from the next-of-kin during the interview process.

Underlying cause of death was coded using ICD-10 codes. The underlying cause of death was determined using the death certificate, medical records and autopsies. Traumatic deaths were defined by ICD-10 codes W00 - Y98.

Cause-specific mortality was analyzed using proportionate mortality ratios (PMR) standardized for age and sex, using the United States as the reference population. Standardized mortality ratios using the expected denominator of 91,469 as identified by the WTC Health Registry were conducted standardizing for age and sex. Three comparison populations were used including the US general population, New York City (NYC), and the NYC region which consists of 16 counties including and surrounding NYC where 61% of the identified deaths occurred (Bergen NJ, Bronx NY, Essex NJ,

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Hudson NJ, Kings NY, Middlesex NJ, Monmouth NJ, Nassau NY, New York NY, Orange NY, Queens NY, Richmond NY, Rockland NY, Suffolk NY, Union NJ, and Westchester NY). Data was extrapolated from 2007 for 2008 and 2009 deaths. The National Center for Health Statistics list of 113 selected causes of death was used for the general analysis of mortality, of which there were at least 5 deaths in 42 of the categories. Additional analyses were conducted for alcohol and drug-related deaths, suicides, homicides, accidental injuries, intentional deaths, chronic effects of substance use, and neoplasms of the upper respiratory system. Mortality analyses were conducted for deaths associated with high-risk behaviors that are potentially a response to psychological stress induced from exposures at WTC. This included deaths from external causes (both accidental and intentional), and from causes directly linked to alcohol or drugs

There were 836 deaths that met the criteria for inclusion in this project. An additional 34 individuals were subsequently excluded due to not meeting the inclusion criteria. Death certificates were obtained for 784 deaths. Cause of death was identified and verified for 813 individuals.

Analyses for this project have not been completed. NYSDOH has worked with other WTC responder programs to identify appropriate analytical techniques. NYSDOH aims to submit the results of this project for peer-review by January 2011.

### **Presentations**

- Stone R. SPIDER updates. *CSTE Annual Conference*, 2006-2010.
- Cummings K. Survey respondents understanding of pre-defined industry categories: Can they relate them correctly to their own job?. *CSTE Annual Conference*, June 2010, Portland OR.
- Fletcher A. Lowering the Blood Lead Interview Criteria Level; An Evaluation of Effectiveness Using Data from the New York State Department of Health's (NYSDOH) Heavy Metals Registry (HMR). *CSTE Annual Conference*, June 2010, Portland OR.
- Cummings K. Surveillance of Work-Related Asthma in New York State. *NYS Occupational Health Clinic Network Quarterly Meeting*, June 2010, Troy NY.
- Cummings K. Work-Related Asthma in New York State. *NIOSH/State WRA Surveillance Meeting*, May 2010, Farmington CT.
- Cummings K. Mechanisms to Collect Industry and Occupation. *Northeast Regional Surveillance Conference*, May 2010, Farmington CT.
- Zhu J. Preventing Fatal Injuries among Solid Waste Workers. *New York State Association for Solid Waste Management semi-annual conference*, May 2010, Bolton Landing NY.
- Myers J, Largo T, Gelberg K. How can multi-year occupational health indicator data be used? *CSTE Annual Conference*, June 2009, Buffalo NY.
- Tice C. Surveillance of work-related asthma: Successes and challenges with the asthma callback survey. *CSTE Annual Conference*, June 2009, Buffalo NY.
- Gelberg K, Hoen R. Trends in occupational fatalities in NYS excluding NYC, 1992-2007. *CSTE Annual Conference*, June 2009, Buffalo NY.
- Zhu J. Fatality Investigation: A Case Study. *American Society of Safety Engineers Eastern NY Chapter monthly meeting*, January 2009, Colonie NY.
- Depersis R, Zhu J. Fundamentals of Industrial Hygiene- Workplace Hazards Assessment and Prevention. *SUNY School of Public Health*, October 2009, East Greenbush NY.
- Gelberg K. Occupational Health Surveillance. *SUNY School of Public Health*, October 2009, East Greenbush NY.
- Zhu J. New York State Occupational Fatality Surveillance and Prevention Overview. *Capital Region Safety & Health Council Meeting*, October 2009, Mechanicville NY.

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- Depersis R, Zhu J. Safety First-It IS Your Responsibility Too. *Albany Youth Construction Incentive Program*, March 2009, Albany NY.
- Gibson AM, Depersis R. Construction Safety. *Youth Construction Incentive Program*, August 2008, Troy NY.
- Cummings K. Reducing Health Disparities: the Occupational Component. *CSTE Annual Conference*, June 2008, Denver CO.
- Fletcher, A. An Evaluation of Mercury Exposures Among the Adult Population in New York State (NYS) Using 2001-2004 Data From the NYS Heavy Metals Registry (HMR). *CSTE Annual Conference*, June 2008, Denver CO.
- Hoehn R. Trends in Work-related Hospitalizations in NYS 1994-2005. *CSTE Annual Conference*, June 2008, Denver CO.
- Gelberg K. Impact of Different IRB Processes in a Multi-State Fatality Registry. *CSTE Annual Conference*, June 2008, Denver CO.
- Gelberg K. Outreach and Community Surveillance: Lessons from the WTC Responders Fatality Investigation Program. *CSTE Annual Meeting*, June 2008, Denver CO.
- Depersis R. Lead Awareness. *Schenectady County Community College*. March 2008, Schenectady NY.
- Gelberg K. Occupational Health Surveillance. *SUNY School of Public Health*, March 2008, East Greenbush NY.
- Zhu J. Occupational Hazards Assessment and Prevention. *SUNY School of Public Health*, February 2008, East Greenbush NY.
- Cummings K. Utilizing Medical Records Departments to Identify Occupational Lung Disease Cases. *CSTE Annual Conference*, June 2007, Atlantic City, NJ.
- Franko E, Hallisey J. Occupational Fatality Disparities Between Younger and Older Workers: Implications for Intervention and Outreach. *CSTE Annual Conference*, June 2007, Atlantic City NJ.
- Gelberg K. WTC Responders Fatality Investigation Project. *WTC Health Registry Cancer and Mortality Workshop; NIOSH Annual FACE meeting; Northeast Regional Occupational Surveillance meeting*, May 2007.
- Zhu J, Hallisey J. New York State Fatality Assessment and Control Evaluation program. *American Society of Safety Engineers Eastern NY Chapter monthly meeting*, April 2007, Colonie NY.
- Zhu J. Fatal Injuries Associated with Solid Waste Operations. *New York State Association for Solid Waste Management semi-annual conference*. September 2007, Lake Placid NY.
- Zhu J. Scrap Metal Recycling Project. *Block Grant Committee meeting*, November 2006, Troy NY.
- Zhu J. Lead Exposure among Metal Recycling Workers. *New York State Occupational Clinic Network meeting*, September 2006, Troy NY.
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- Cummings K. Work-related Asthma Surveillance in New York State. *NCEH Annual Asthma Meeting*, September 2006, Atlanta GA
- Gelberg K. Development and Evaluation of Communications Campaign to Increase Registry Reporting. *NCEH Annual Asthma Meeting*, September 2006, Atlanta GA.
- Gelberg K. Evaluation of 16 Years of Occupational Health Clinic Network Data. *CSTE Annual Meeting*, June 2006, Anaheim CA.

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- Gelberg KH, Brissette I, Cummings K. Evaluation of a Communications Campaign to Increase Physician Reporting to a Surveillance System. *Accepted for publication: Public Health Reports, January 2011.*
- Zhu M, Fitzgerald EF, Gelberg KH, Lin S, Druschel C. Maternal low-level lead exposure and fetal growth. *Environmental Health Perspectives, online 21 June 2010*
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- Brissette I, Gelberg KH, and Grey AJ. The Effect of Message Type on Physician Compliance with Disease Reporting Requirements. *Public Health Reports, 2006*; Vol 121(6):703-709.
- Brissette I, Gelberg KH, Grey AJ. The effect of message type on physician compliance with disease reporting requirements. *Public Health Rep. 2006*; 121:703-709.

### **Inclusion of gender and minority study subjects**

Women and minorities will be represented in the databases being analyzed. Therefore, their representation in the occupational health surveillance data will be determined, in part, by the frequency with which they develop work-related injuries and illnesses. Neither women nor minorities will be excluded. With regard to the sex, race and ethnicity of NYS workers in 2005, 48% were female, 15% identified themselves as Black, 14% Hispanic, and 9% other races.

### **Inclusion of children**

Children under the age of 18 will be included if they are represented in the databases being analyzed. In 2005, 1.4% of workers in NYS were 16 to 17 years old.

### **Materials available for other investigations**

None.