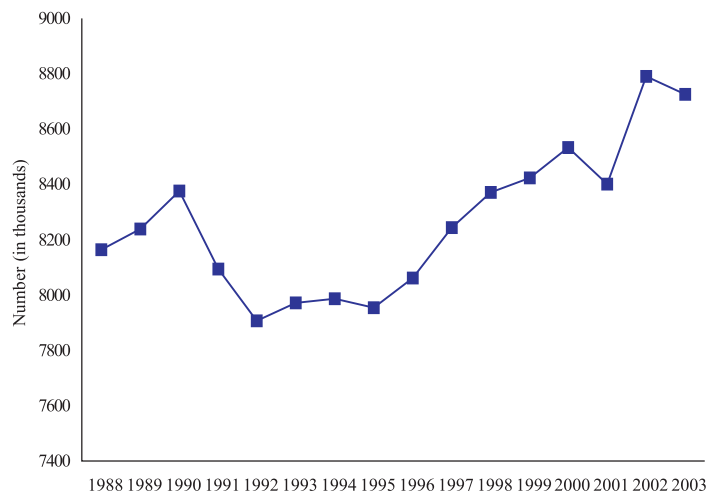


## Chapter 6. New York State Workforce

The patients seen by the NYS Occupational Health Clinic Network represent a unique subset of the New York State working population. This chapter describes the NYS workforce and some of the health issues faced by this population. Comparisons to the Clinic Network population are made, where applicable.

In 2003, New York State (NYS) had over 8,726,000 full-time employees – with approximately 3.4 million in NYC and 5.4 million in NYS outside of New York City (NYC).<sup>1</sup> The number of workers has varied over time (Figure 6.1). It is often useful, for purposes of analysis, to divide the state into two regions: NYC and the rest of New York State (all regions of the State excluding the 5 boroughs of the City) due to differences in demographics and types of occupations between the two regions.

**Figure 6.1.** Number of Full-Time Employees in NYS, 1988-2003

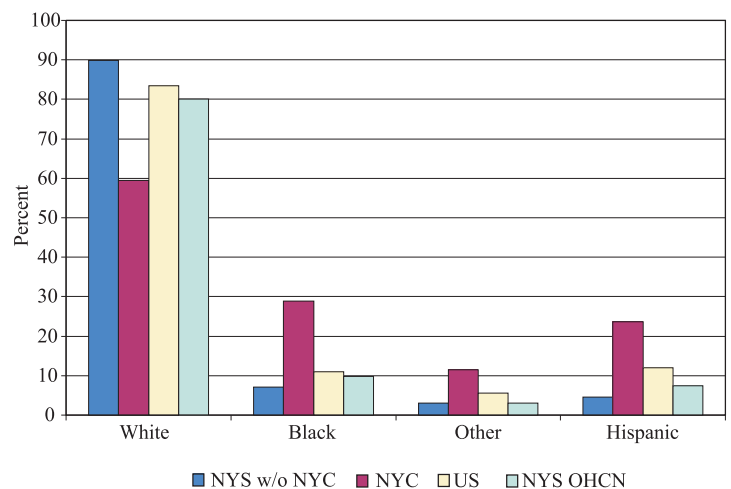


### Race and Ethnicity

The NYS working population, excluding NYC, is predominantly White (Figure 6.2). In the past few years, there has been a slight increase in the percent of other races including African Americans and those of Hispanic origin (data not shown). In 2002, NYS without NYC had a slightly higher percent of working females (47.4%), teenagers (2.1%), and older workers (3.6%) than in the United States (46.7%, 1.8%, and 3.2%, respectively). Approximately 6% of workers in NYS, excluding NYC, were self-employed and 21% worked in part-time jobs (data not shown).<sup>2</sup> The Clinic population mimics the US population.

The NYC working population is much more ethnically diverse than the rest of the state (Figure 6.2) with a much higher percent of African Americans, other races, and those of Hispanic origin than the rest of NYS and the U.S. working populations. In 2002, approximately 7% of NYC workers were self-employed and almost 14% worked in part-time jobs. NYC had a slightly higher percent of working females (48.5%) and older workers (4.0%) than the United States (46.7% and 3.2%, respectively). Only one percent of the NYC working population were teenagers (16 to 17 years old), which was lower than the national percent of 1.8% (data not shown).<sup>2</sup>

**Figure 6.2.** Percent of Civilian Employment, by Race, for NYS without NYC, NYC, the US and the NYS OHCN, 2002



\*Clinic Network includes data from 1988-2003

### Hispanics and Foreign-born

In NYS, a large percent of the workforce is foreign-born and/or Hispanic, particularly in comparison to the rest of the US. In 2000, New York had 2.9 million Hispanic residents. The largest Hispanic population in the nation resides in NYC where there are more than 1.1 million Hispanic workers.<sup>3</sup> Among Hispanic men, 30% are employed in private households and 22% in retail trade; among Hispanic women, over 35% are employed in private households and over 32% are employed in the manufacturing industry.<sup>3</sup> Compared to Whites in NYS, Hispanic workers in NYS account for a disproportionate percentage of those working in service occupations and as machine operators and laborers (Table 6.1).

In NYS, Hispanic workers experience approximately six percent of recorded work-related injuries and illnesses compared to 12% in the US and 16% of the traumatic fatalities.<sup>1</sup> Hispanics make up 7% of the NYS OHCN population. Respiratory diseases accounted for 26% of the disease conditions experienced by the Clinic Hispanic population, and musculoskeletal diseases accounted for 25% of their disease conditions. Over 41% of the Clinic Hispanic population was employed in the services industry.

In 2002, more than 40% of the US Hispanic population was foreign-born.<sup>4</sup> Foreign-born men are more likely to be in the labor force (81%) than native-born men (72%).<sup>2</sup> Foreign-born workers are employed primarily in management occupations (27%), followed by service occupations (23%) and sales and office occupations (18%).<sup>2</sup> The median earning of foreign-born workers is approximately 75% of that of their native-born counterparts.<sup>2</sup>

**Table 6.1.** Percent Distribution of NYS Employed Persons by Occupation and Race, 2002

Occupation	White	African American	Hispanic
Executive, administrative, managerial	16.6	10.8	8.0
Professional specialty	18.5	13.3	8.9
Technicians and related support	2.8	2.5	1.8
Sales	11.6	8.3	9.8
Administrative support, including clerical	14.1	16.0	11.9
Service	14.9	29.1	28.7
Precision production, craft	9.3	6.2	10.1
Machine operators, assemblers, inspectors	3.6	3.9	7.5
Transportation and material moving	3.9	5.7	6.0
Handlers, equipment cleaners, helpers, laborer	3.0	3.9	5.7

### African-Americans

Approximately 15% of the NYS workforce is African American, compared to 11% nationally. This percentage varies substantially between NYC where approximately 26% of the workforce is African American, compared to the remainder of NYS where only 8% of the workforce is African American. In NYS, African Americans work primarily in services occupations and in administrative support (Table 6.2). Slightly less than a quarter of African Americans employed in NYS work in managerial and professional specialty occupations. Between 1992 and 2002, African Americans experienced 6% of all work-related fatalities, statewide, but 23% of the work-related fatalities in NYC (excluding events from September 11, 2001).<sup>5</sup> African Americans made up 7% of the clinic population in NYS outside of NYC, but 19% of the clinic population in NYC (Figure 2.9).

## Age

### *Older Workers*

The percent of older Americans working has been on the increase in the past few years. The hazards encountered by older workers are similar to those faced when they were younger; however, the injuries experienced are often more severe and require longer recovery times.<sup>6,7</sup> Currently, 60% of those aged 55 to 64 are in the labor force, and 14% of those aged 65 years and older are working. On average, over 10,000 workers 55 to 64 years old and over 1,400 workers 65 years and older in NYS are reported with a work-related injury or illness.<sup>1</sup> The percent of workers aged 55 to 64 reported with work-related injuries and illnesses in NYS is higher than the national average, while the percent of workers aged 65 years and older with work-related injuries and illnesses is approximately the same as nationwide figures.

Over one-fourth of the NYS OHCN patient population was 55 years of age or older during their initial visit. Half of these patients were seen as part of screening programs. Diagnoses among the 55 to 64 year olds were primarily diseases of the respiratory system (33%), of the musculoskeletal system (15%) and of the nervous system (14%). Among those 65 years and older, diagnoses were primarily diseases of the respiratory system (45%) and of the circulatory system (11%), and neoplasms (9%).

### *Teen Workers*

Young workers are believed to be at increased risk of occupational injury due to limited job knowledge, training and skills.<sup>8</sup> This limited knowledge may result in young workers performing tasks outside their usual assignments, being unfamiliar with work requirements and safe operating procedures, and being unaware of their legal rights. Youths may also be at increased risk of injury from chemical and other physical exposure risks at work. The rapid growth often occurring in the teen years may increase their risk for harm from exposures to hazardous substances or that may disrupt the function and maturation of their organ systems.<sup>9</sup>

It is estimated that between 70 to 80 percent of teens have worked for pay at some time during high school.<sup>9</sup> On average in NYS, approximately 3,000 workers 19 years of age and younger are reported with work-related injuries and illnesses. For the most part, the NYS OHCN does not encounter many youths. One-quarter of the patients under 19 years of age were seen for environmental conditions, and 70% of the young occupational patients were seen as part of group screenings. Diagnoses for this group were primarily respiratory diseases.

## Women in the Labor Force

Women make up about 47% of the workforce in NYS. This percent has been relatively stable since 1996 and is consistent between NYC and the rest of NYS. Overall, among working age women, the level of educational attainment has increased substantially from about 1 in 10 women holding college degrees in 1970 to 3 in 10 women.<sup>10</sup> Nationally, about 26% of employed women worked part-time, and 5.6% were multiple jobholders.<sup>10</sup>

Women in NYS are primarily employed in administrative support occupations (22.6%), professional specialties (20.9%), and service occupations (21.4%).<sup>1</sup> Nationally, Hispanic and African American women were more likely than White or Asian women to work in the service occupations.<sup>10</sup> Almost 40% of women in NYS are employed in the services industry, 20% in government and 16% in trade.<sup>1</sup>

Overall, women have a lower share of occupational injuries and illnesses experiencing only eight percent of the work-related traumatic fatalities and 37% of the work-related injuries and illnesses in New York.<sup>1</sup> This difference is partially explained by the differences in the occupations and industries of employment for males and females. In 2003, musculoskeletal injuries were the leading source of workplace injuries nationwide among females.<sup>11</sup> In the NYS OHCN population, there were twice as many women as men diagnosed with diseases of the musculoskeletal system, accounting for 29% of all diagnoses among women and only 11% of all diagnoses among men (excluding V-codes). Specifically, women accounted for 73% of the carpal tunnel syndrome diagnoses and 72% of the disorders of muscles and tendons and their attachments.

## Minimum-Wage Workers

According to the Current Population Survey estimates for 2004, there were 4,009,000 workers in NYS paid hourly rates. Of those, 128,000 were paid below 70% minimum wage of \$5.15 per hour.<sup>1</sup> About four percent of women reported earning wages at or below minimum wage compared with about two percent of men. Among all workers paid hourly rates, nine percent were 16 to 19 years of age, and four percent were 65 years and over. In both of these age groups, there was a higher percent of women than men earning at or below minimum wage – 12% vs. 7% of 16 to 19 year olds and 6% vs. 2% of those 65 years and over.

Over three-fourths of minimum wage workers were in service occupations – primarily food preparation and serving (59%) and personal care (8%). Another 7% were employed in sales occupations. By industry, 62% of minimum wage workers were employed in leisure and hospitality industries, 8% in retail trade, and 7% in education and health services.<sup>12</sup>

## Low Income Workers

Approximately two million individuals, or 11% of the NYS population, do not have access to basic medical care. This could be due either to the lack of available primary care, uninsurance or unaffordability.<sup>13</sup> In NYS, there is a system of Community Health Centers that provides primary care to underserved communities including low-income families, migrant workers, and farm workers. Approximately 74% of the patients served by the Community Health Centers are minorities, and 69% are at or below the federal poverty level.<sup>14</sup> The Clinic Network ensures no worker is turned away by using a sliding-fee scale for patients without health insurance or who are unable to pay for clinical services.

## High-Risk Industries and Occupations

Table 6.2 displays the average percent of employment, by industry, for each of the New York geographic regions and for the United States, as comparison, for 1996 through 2002\*. A large percent of the population are employed in the services and retail industries. In NYS excluding NYC, a higher percent of individuals are employed in the public administration industry, compared to the rest of the country; while in NYC, a higher percent of workers are employed in the transportation, communication and utilities industries than in the rest of NYS and the United States. Between 1998 and 2003, there has been an overall decline in the number of manufacturing and wholesale trade businesses and employees in NYS, while most other industries have increased both the number of establishments and the number of employees.<sup>15,16</sup>

\*For comparison purposes, the distribution of employment among the Clinic Network Patients is included.

**Table 6.2.** Percent of Employment, by Industry, 1996-2002 – US, NYS without NYC and NYC<sup>21</sup>

Employment	Clinic Network Patients	NYS w/o NYC	NYC	Entire NYS	US
Agriculture	4.1	1.9	0.2	1.2	2.5
Mining	0.3	0.1	0.0	0.1	0.4
Construction	22.6	5.9	5.0	5.7	6.8
Manufacturing	13.2	14.1	8.4	10.9	15.0
Transportation, Communication, Utilities	11.1	7.5	9.1	7.6	7.2
Wholesale Trade	0.7	3.8	3.0	3.2	3.9
Retail Trade	1.9	15.9	15.1	15.7	16.9
Finance, Insurance, Real Estate	1.4	7.0	11.1	8.3	6.6
Services	22.9	38.2	45.4	42.4	36.1
Public Administration	21.6	5.4	4.0	4.8	4.5

According to the US Bureau of Labor Statistics (BLS), 190,000 New Yorkers in 2002 suffered from work-related injuries or illnesses with 96,100 of those involving days away from work. Workers at high-risk for nonfatal occupational injuries and illnesses in NYS include those involved in the manufacture of aircraft and parts, air transportation, health services and highway and street construction among state government employees, and public order and safety including police and fire protection among local government employees.<sup>17</sup> Unfortunately, illness and injury information by geographic region (NYC vs. rest of NYS) is not available from BLS (personal communication, 2004).

The fatality rate for 1995 through 1999, by industry group, is displayed for each New York region and the United States for comparison (Table 6.3). These data indicate that workers in New York State outside of NYC are at high risk for fatalities in the agriculture, construction and transportation industries; and that NYC workers are at high risk for fatalities primarily in construction and transportation.

**Table 6.3.** Five-year Average Fatality Rate, by Industry, 1995-1999 – US, NYS without NYC and NYC

Fatalities	NYS w/o NYC	NYC	Entire NYS	US
Agriculture	24.2	0	22.9	23.0
Mining	0	0	0	24.5
Construction	11.2	20.1	13.9	14.3
Manufacturing	2.3	0.7	1.9	3.5
Transportation, Communication, Utilities	7.0	12.2	9.2	12.7
Wholesale Trade	1.7	4.7	2.7	4.9
Retail Trade	1.6	6.6	3.4	2.9
Finance, Insurance, Real Estate	0.6	1.2	0.9	1.3
Services	0.8	1.5	1.1	2.1

## High-Risk Exposures

### Lead

Using data from the NYS Department of Health’s Heavy Metals Registry, there has been a decline in the prevalence of elevated blood lead levels among adults in NYS. Since 1994, there has been a 53% decrease in the number of workers reported with levels greater than or equal to 25 µg/dL associated with or due to occupational exposures (Table 6.4). At the same time, there has been over a four-fold increase in the number of individuals reported with blood lead levels below 25 µg/dL, indicating a high rate of screening for lead poisoning (data not shown). It is unknown whether individuals with potential occupational lead exposures are part of this screening activity. While the majority of the reduction in elevated blood lead levels appears to be due to better mechanisms to control lead exposure in the workplace, other factors may also be involved. The number of NYS companies using lead has decreased as a result of either work process changes to eliminate lead or company closings, following national trends.<sup>18</sup> Another factor in the reduction of elevated blood lead levels may be the elimination or reduction of biomonitoring by some companies.

Despite the overall decline in prevalence of elevated blood lead levels, there are certain groups that have an increase in prevalence including occupationally exposed iron workers,

lead abaters and residential remodelers (with both occupational and non-occupational sources). This is due to increases in both blood lead testing among exposed individuals and in blood lead levels among these groups. Non-occupational exposures represent a relatively large percent of individuals with severely elevated blood lead levels, compared to lower blood lead levels. It is possible that these individuals were tested because they had symptoms.

Although a substantial number of adults in NYS are having their blood lead levels tested, other information indicates that the registry does not accurately reflect the true magnitude of exposure to lead in the State. There are approximately 283,000 people employed in industries with the potential for lead exposure.<sup>2</sup> While all of these employees may not be exposed to lead, a large percentage probably are and many employees in other industries may also be exposed. A study in California found that only 2.6% of workers with direct exposure to lead were in routine blood monitoring programs.<sup>19</sup> There are also numerous individuals engaged in home renovations, target shooting and other hobbies with the potential for lead exposure who often do not get their blood lead levels tested. Therefore, the registry may only be providing the lower boundary of the magnitude of lead exposure in New York.

Since 1988, the NYS OHCN has tested 2,676 individuals for lead exposure, of which 10% had blood lead levels of 25 µg/dL or higher. Of those tested for exposure, 84% worked in the construction industry (Figure 4.5).

**Table 6.4.** Number of Adults with Blood Lead Levels 25 µg/dL or Greater, Reported to the New York State Heavy Metals Registry, by Occupational Status, by Year

	Total	Occupational		Non-Occupational		Both		Unknown	
		N	%	N	%	N	%	N	%
1994	1135	1007	88.7	84	7.4	13	1.1	31	2.7
1995	1038	917	88.3	64	6.2	18	1.7	39	3.8
1996	1104	887	80.3	75	6.8	15	1.4	127	11.5
1997	1052	912	86.7	74	7.0	18	1.7	48	4.6
1998	920	787	85.5	77	8.4	10	1.1	46	5.0
1999	945	809	85.6	73	7.7	7	0.7	56	5.9
2000	945	795	84.1	67	7.1	11	1.2	72	7.6
2001	826	650	78.7	80	9.7	19	2.3	77	9.3
2002	798	591	74.1	76	9.5	11	1.4	120	15.0
2003	634	474	74.8	88	13.9	9	1.4	63	9.9

## Asbestos

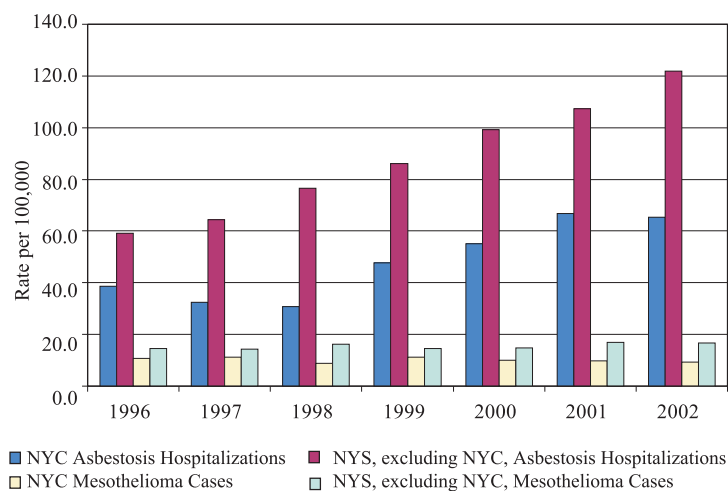
The rate of hospital discharges of individuals with asbestosis and of people diagnosed with mesothelioma (per the NYS Cancer Registry) has been steadily increasing since 1996 (Figure 6.3). This data does not include residents hospitalized outside of NYS or in federal hospitals. Although most of these cases are from past exposures and there is little that can be achieved through current work-site interventions, there is a public health benefit to continued screening of high-risk workers to ensure they get appropriate medical care related to their conditions related to past exposures. Workers continue to be exposed to asbestos through asbestos abatement and demolition work. Others, in the course of their work, continue have asbestos exposure including maintenance workers, telephone line installers and plumbers. The NYS OHCN is assisting in this effort as evidenced by the identification of 9,507 exposures to asbestos among the patient population (Figure 4.2).

## Physical/Ergonomic Work Factors

Physical and ergonomic factors such as repetition, force, posture, and vibration are associated with the development or recurrence of adverse medical conditions. Epidemiologic evidence focuses chiefly on disorders that affect the neck and the upper extremity, including tension neck syndrome, shoulder tendinitis, epicondylitis, carpal tunnel syndrome, and hand-arm vibration syndrome. Work organization and psychosocial factors influence the relationship between exposure to physical factors and work-related musculoskeletal disorders. Literature reviews have identified a number of specific physical exposures strongly associated with specific musculoskeletal disorders when exposures are intense, prolonged, and particularly when workers are exposed to several risk factors simultaneously.<sup>20</sup>

According to the Bureau of Labor Statistics, in NYS in 2000 there were over 40,000 musculoskeletal disorders involving days away from work among private sector employees, with one-fourth of these involving the neck, shoulder and upper extremities, and over half involving the back.<sup>21</sup> Physical and ergonomic factors accounted for almost one-fourth of all exposures experienced by the NYS OHCN population. The dramatic increase over time in musculoskeletal disorders diagnosed by the Clinic Network is anticipated to continue to increase (Figure 3.23).

**Figure 6.3.** Annual Age-standardized Rates of Asbestos Hospital Discharge and Mesothelioma Cases, by Geographic Region and Year



## NYS Workforce Projections

During the next 10 to 15 years, work in the United States will continue to be influenced by demographic factors, changes in technology and economic globalization.<sup>22</sup> Aspects of work that can be affected include the size and composition of the workforce, features of the workplace and compensation packages.

The major demographic factor expected to influence the workforce is the aging population. Between 2005 through 2020, the working population in NYS aged 55 through 64 is expected to grow by 25% or 500,000 workers.<sup>23</sup> It is expected that the percent of women in the workplace will continue to increase, although not as rapidly as in the past 20 years. The combination of more women working and the aging population increases the responsibilities of workers outside of the work environment, including caring for children and/or older parents. The other demographic factor expected to influence the workforce in NYS is the expected increase in international immigration which will increase the racial and ethnic diversity of the workforce.

Despite this growth, the overall expectation for NYS is slow growth in the working population, primarily due to a decline among younger workers and outmigration. Due to this slow labor force growth, employers will use increasingly non-traditional methods to attract employees to avoid labor shortages.

These may include higher wages, flexible schedules or telecommuting, or more generous fringe benefits.<sup>22</sup> Employers may also seek to use previously untapped labor force capacity such as low-income women with children, former military personnel and immigrants.<sup>22</sup>

Due to the increasing use of computers and advanced technology in workplaces, workers in all occupations will be required to have increased levels of skills and education. As the demand for lower skilled workers decreases and as workers increase their educational and skill levels, the wage gap between high- and low-paying jobs is expected to widen.<sup>23</sup> Occupational projections for NYS through 2012 indicate an increasing need for workers in almost all categories except administrative support occupations and production occupations – both categories where many of those with lower educational levels often work.<sup>24</sup> This shift in employment categories will require a renewed focus on worker retraining and upgrading of skills.<sup>23</sup>

Occupational projections for NYS through 2012, reported by the New York State Department of Labor<sup>24</sup>, indicate over 20% growth in both computer and mathematical occupations and in nursing, psychiatric and home health aides. The largest anticipated increases by percent employment are among physician assistants, medical assistants, physical therapist assistants and aides and occupational therapist assistants and aides; all corresponding to needs produced by the aging population. Growth is also anticipated in the construction trades, specifically among tile and marble setters, cement masons, drywall installers, tapers, electricians and roofers. The largest anticipated reductions are among word processors and typists, computer operators, assemblers, and machine operators.<sup>24</sup>

## References

- <sup>1</sup> US Bureau of Labor Statistics. Geographic Profile of Employment and Unemployment, 2002. Bulletin 2564. <http://www.bls.gov/opub/gp/laugp.htm>
- <sup>2</sup> Safety is Seguridad: A Workshop Summary. Appendix D. Hispanic Workers in the United States: An Analysis of Employment Distributions, Fatal Occupational Injuries, and Non-fatal Occupational Injuries and Illnesses. The National Academies Press, 2003.
- <sup>3</sup> Ramirez RR, de la Cruz GP. The Hispanic Population in the United States: March 2002. Current Population Reports, P20-545, US Census Bureau, Washington DC, 2002.
- <sup>4</sup> US Department of Labor, Bureau of Labor Statistics. Labor Force Characteristics of foreign-born workers in 2004. USDL 05-834. May 2005.
- <sup>5</sup> US Department of Labor, Bureau of Labor Statistics. Census of Fatal Occupational Injuries Profiles and Charts 1992-2002.
- <sup>6</sup> Rogers E, Wiatrowki WJ. Injuries, illnesses, and fatalities among older workers. Monthly Labor Review 24-30, 2005.
- <sup>7</sup> Gelberg KH, Struttman TW, London MA. A Comparison of Agricultural Injuries Between the Young and Elderly: New York and Kentucky. Journal of Agricultural Safety and Health 5(1):73-81, 1999.
- <sup>8</sup> National Institute for Occupational Safety and Health. Worker Health Chartbook 2004. NIOSH Publication No. 2004-146.
- <sup>9</sup> Light A. High school employment: National Longitudinal Survey discussion paper. NLS 95-25. US Department of Labor, Washington DC, 1995.
- <sup>10</sup> US Department of Labor, Bureau of Labor Statistics. Women in the Labor Force: A Databook. Report 985, May 2005.
- <sup>11</sup> Hoskins AB. Occupational injuries, illnesses, and fatalities among women. Monthly Labor Review, 31-37, 2005.
- <sup>12</sup> US Department of Labor, Bureau of Labor Statistics. Characteristics of Minimum Wage Workers: 2004. April 2005.
- <sup>13</sup> National Association of Community Health Centers. Special Topics Issue Brief #5 A Nation's Health at Risk: A National and State Report on America's 36 Million People Without a Regular Healthcare Provider. March 2004.
- <sup>14</sup> CHCANYS. Community Health Care Association of New York. [www.chcanys.org](http://www.chcanys.org).
- <sup>15</sup> US Bureau of the Census. County Business Patterns 2003. New York. Washington DC: US Government Printing Office.
- <sup>16</sup> US Bureau of the Census. County Business Patterns 1998. New York. Washington DC: US Government Printing Office.
- <sup>17</sup> US Department of Labor, Bureau of Labor Statistics. Incidence rates of nonfatal occupational injuries and illnesses by industry and case types, 2002.
- <sup>18</sup> Okun A, Cooper G, Bailer AJ, et al. Trends in Occupational Lead Exposure Since the 1978 OSHA Lead Standard. Am J Ind Med 45:558-572, 2004.
- <sup>19</sup> Maizlish N, Rudolph L. California Adults with Elevated Blood Lead Levels, 1987 through 1990. Am J Public Health 1993; 83:402-405.
- <sup>20</sup> National Institute for Occupational Safety and Health. Musculoskeletal disorders (MSDs) and Workplace Factors. A Critical Review of Epidemiologic Evidence for Work-related Musculoskeletal Disorders of the Neck, Upper Extremity, and Low Back. DHHS (NIOSH) Publication 97-141, July 1997.
- <sup>21</sup> Council of State and Territorial Epidemiologists. Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000. October 2005.
- <sup>22</sup> Karoly LA, Panis CWA. The 21<sup>st</sup> Century at Work. Forces Shaping the Future Workforce and Workplace in the United States. Rand Corporation, California 2004.
- <sup>23</sup> NYS Department of Labor. Employment in New York State. May, June 2004.
- <sup>24</sup> NYS Department of Labor. Occupational Projections. Occupational Outlook 2002-2012. <http://www.labor.state.ny.us/workforceindustrydata>