

New York State Occupational Health Clinic Network Report – Key Updates 2006 - 2015

The New York State (NYS) Occupational Health Clinic Network (OHCN) is unique in the United States as a partially-funded, statewide, public health-based network offering clinical and preventive occupational disease services. There are 11 clinics located throughout NYS including a Clinic specializing in agricultural safety and health. Since 1988, the OHCN has contributed to maintaining a healthy workforce in New York. Utilizing a public health approach, regionally-based clinics diagnose and treat occupational diseases and help improve working environments in New York State. The clinics also assist in meeting the goal in the [NYS Department of Health Prevention Agenda 2013-2017](#) of reducing occupational injury and illness.

This report represents an update of a selected subset of figures from the initial [NYS Occupational Health Clinic Report \(1988-2003\)](#) to include data from 2006 through 2015. Data in this report is not directly comparable to previous reports because analysis in this report utilized each patient's first visit during each year between 2006-2015, whereas previous reports utilized an individual's first visit throughout the selected years.

The current report provides updated data to better reflect current trends in diagnoses and exposures, and a more detailed description of data found in the original report. Properly identifying workplace hazards can be used to improve treatment and management of occupational diseases as well as prevent them from occurring. Data in this report will assist in identifying current occupational health needs in NYS as well as those being met by the OHCN.

Overview:

- Between 2006 and 2015, 30,534 new patients were seen in 119,700 visits.
- Patients were seen from all counties in NYS, with most people residing in counties with large metropolitan areas.
- A higher percentage of patients were employed in public administration (35%), services industry (26%), and manufacturing (10%). This does not reflect the NYS workforce.
- Patients were primarily seen for diseases of the musculoskeletal system, respiratory system, and injuries and poisonings.
- Approximately one-third of patient exposures were ergonomic factors, including keyboard use and repetitive motion. The next largest groups of exposures included physical factors such as heat, cold, and radiation (18%) and mineral/inorganic dusts, including asbestos, silica and non-specified dusts (15%).

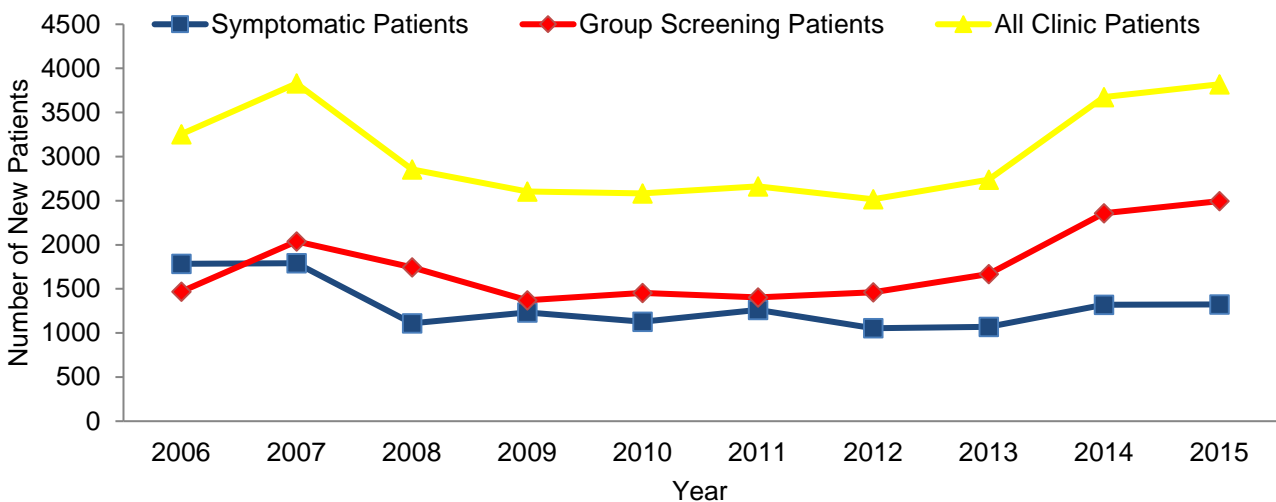
Patient Characteristics

Patient Population

Figure 2.1. Number of new NYS OHCN patients seen, by year. From 2006 through 2015, 30,534 new patients were seen in the NYS OHCN in 119,700 visits. These patients were roughly equally divided between group screening patients* and symptomatic patients. The number of new patients decreased almost every year from 3,254 in 2006 to 2,516 in 2012, before starting to gradually increase. Overall, the total number of new patients seen each year by the NYS OHCN has also decreased over the years, from 6,899 patients in 2006 to 3,850 patients in 2015 (data not shown). This decline is primarily due to patients who were seen for exposures at the World Trade Center moving to specialized World Trade Center clinics.

*The Clinics offer screening services for groups of exposed workers. Because these patients are usually not experiencing symptoms and are not seeking diagnostic services, per se, they are classified separately in the database as group screening patients.

Figure 2.1. Number of New NYS OHCN Patients Seen, by Year, 2006-2015*

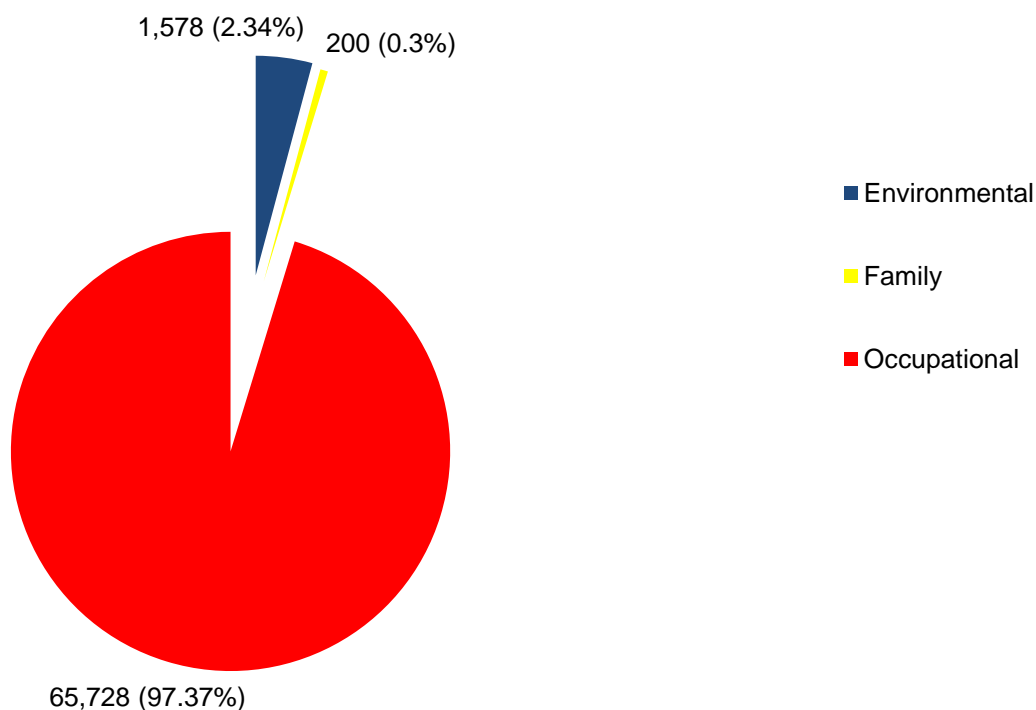


Subsequent analysis in this report utilized each patient's first visit during each year between 2006-2015, regardless of whether they were a new patient (n =67,506).

Figure 2.2. Percentage of NYS OHCN patients, by type seen. Overall, approximately 97% (65,728) of patients were seen for occupational exposures. Occupational patients had exposures from either their present or past occupations. The small percentage of environmental patients were seen for non-occupational exposures to such places as landfills, home mold-related problems, and a variety of other exposures. In addition, some patients were family members of workers seen for possible health effects related to take-home exposures.

In general, there were a much higher percentage of females (data not shown) among the environmental (62%) and family (65%) patients, compared to the occupational patients (32%).

Figure 2.2. Percentage of NYS OHCN Patients, by Type Seen, 2006-2015



County of Residence

Figure 2.3. Residence of NYS OHCN patients, by county. Patients were seen from all counties in NYS, with large percentages residing in counties with large metropolitan areas such as the five counties of New York City (NYC), Albany, Erie and Suffolk counties. Otsego and Monroe Counties had the highest number of patients. There were substantially fewer patients from areas of the state with lower populations such as the Adirondack Park.

Figure 2.3. Residence of NYS OHCN Patients, by County, 2006-2015

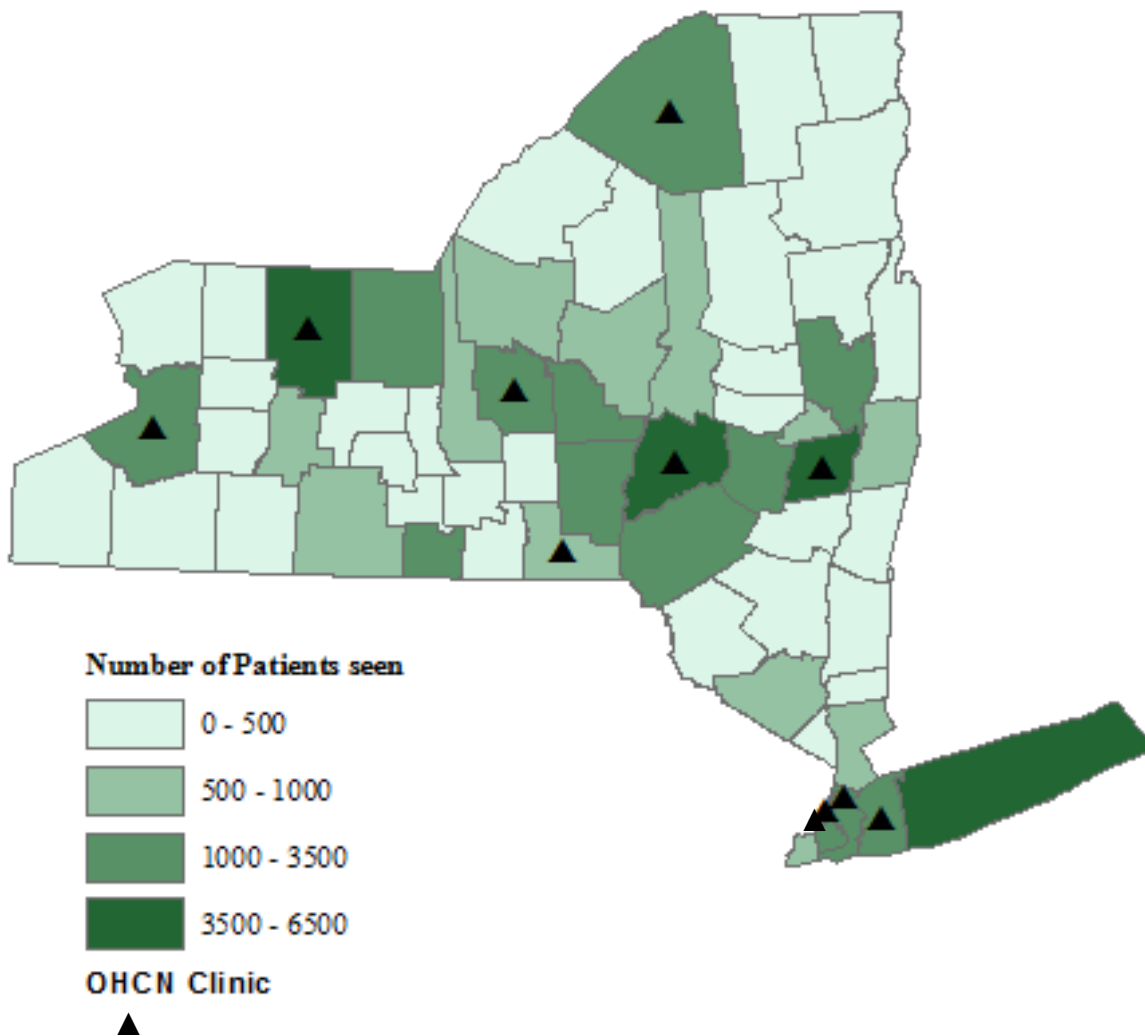
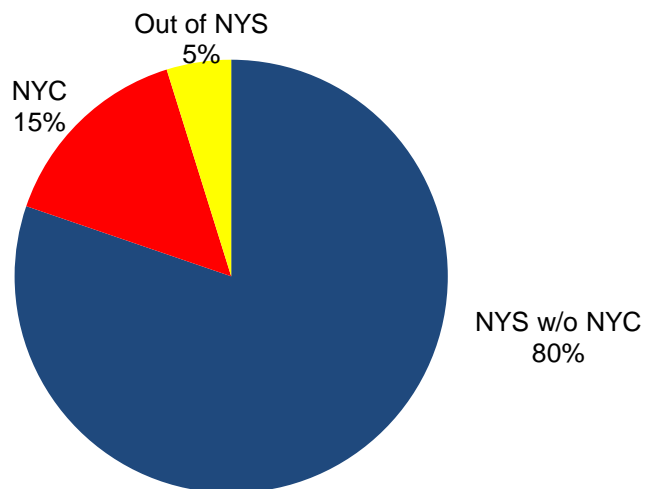


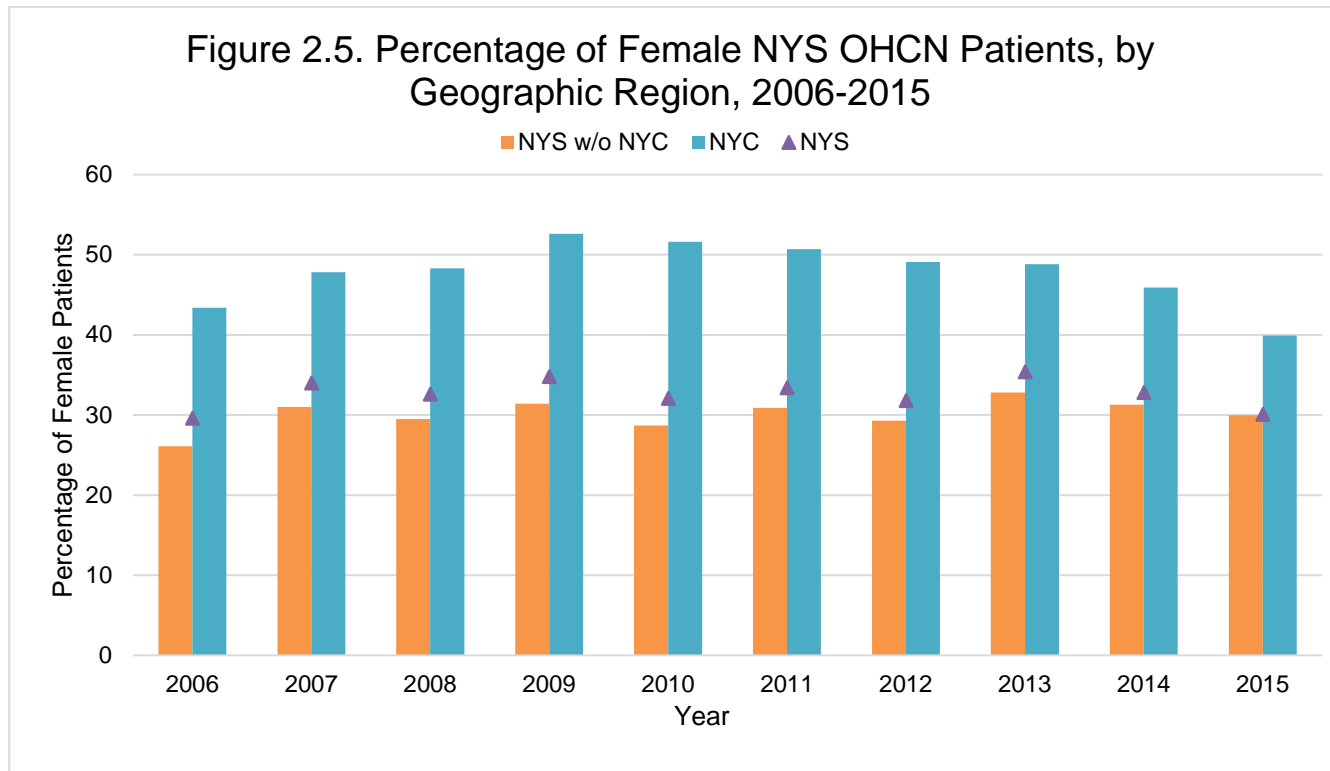
Figure 2.4. Percentage of NYS OHCN patients, by geographic region. There were 64,256 patients who resided in NYS; 54,173 (80%) outside of NYC and 10,083 (15%) in NYC. There were 3,250 (5%) patients who were not NYS residents.

Figure 2.4. Percentage of NYS OHCN Patients, by Geographic Region, 2006-2015



Sex of Patient Population - Females

Figure 2.5. Percentage of female NYS OHCN patients, by geographic region. Females accounted for 32% (n=21,981) of the patient population. A higher percentage of women were seen in NYC (48%) as opposed to NYS outside of NYC (30%). Overall, the percentage of patients who were female has remained relatively stable. Ninety-five percent of the females were seen for occupational conditions, while 98% of the males were seen for occupational conditions (data not shown).



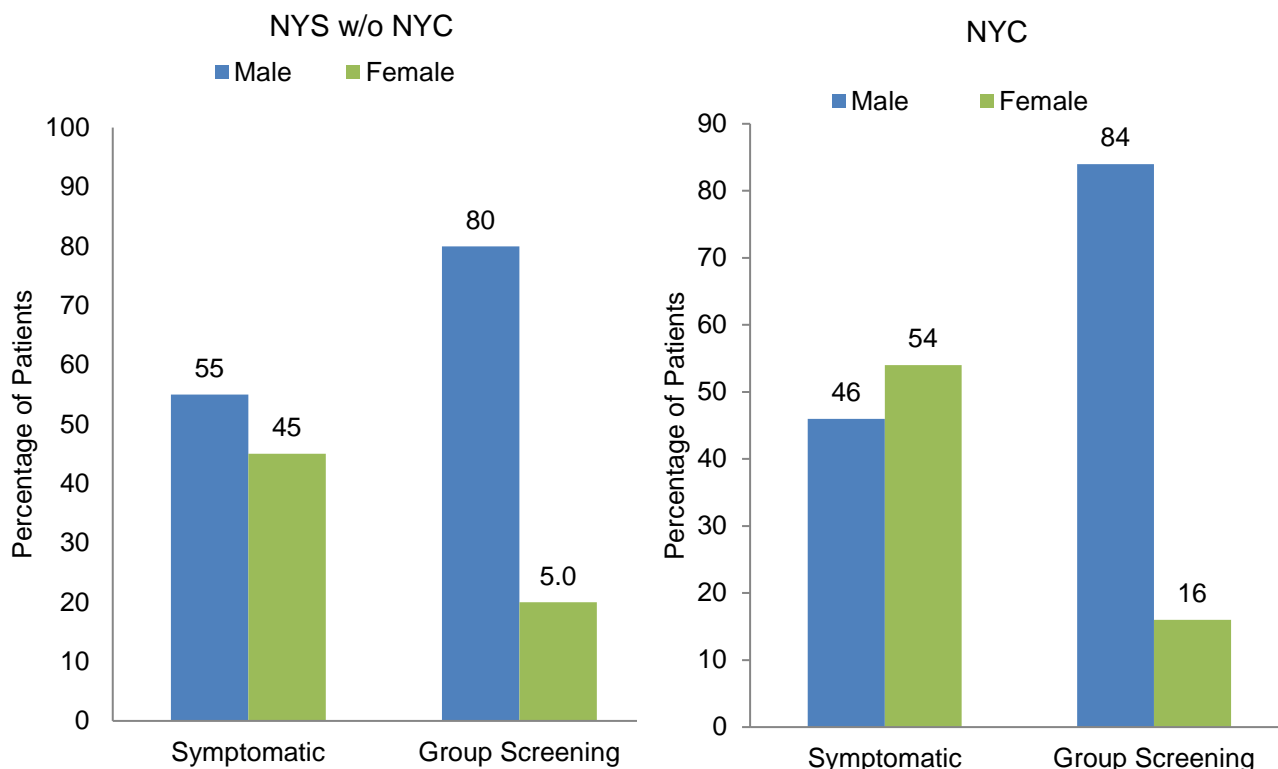
Group Screening Patients

Overall, 35,494 (53%) patients were seen in the NYS OHCN as part of group screenings. Among those seen for screening, 14,768 (42%) were part of a respirator certification program, 3,115 (9%) were followed-up for asbestos exposure, and 9,822 (28%) were general occupational health examinations due to on-the-job exposures. Many of the group screening patients were seen due to potential exposures to hazardous agents including screenings for Lyme disease, skin cancer, Hepatitis, lead and hearing loss. Patients were also screened as part of pre-placement examinations.

Figure 2.6. Percentage of NYS OHCN patients, by sex, geographic region and patient type.

Among all patients seen in NYS outside of NYC (54,173), 9,739 (18%) were female patients seen as part of a sick visit (symptomatic) and 6,549 (12%) were females seen as part of group screenings; 12,080 (22%) were symptomatic male patients, and 25,805 (48%) were males seen as part of group screenings. In NYC, a greater percentage of women were seen as symptomatic patients (54%) as compared to men (46%). Whereas outside of NYC, a higher percentage of males were seen as symptomatic patients (55%) compared to women (45%).

Figure 2.6. Percentage of NYS OHCN Patients, by Sex, Geographic Region and Patient Type, 2006-2015



Age of Patient Population

Figure 2.7. Percentage of NYS OHCN patients, by age. The mean age of the patients seen during the time period was 47 years (data not shown), with over 65% of the patients between 31 and 60 years of age. There were 2,025 patients under 20 years of age when first seen and 11,629 patients were over 60 years of age during their first visits to the Clinic. This is consistent with the NYS workforce.

Figure 2.7. Percentage of NYS OHCN Patients, by Age, 2006-2015

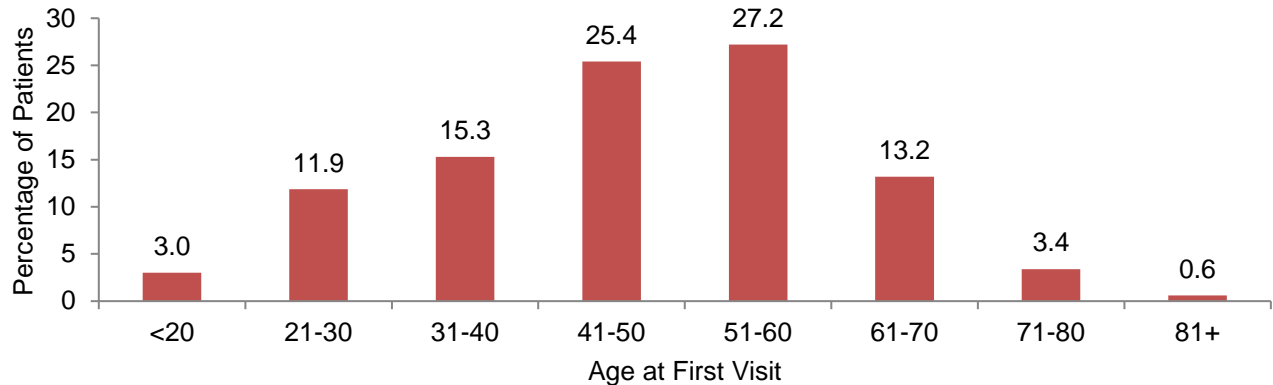
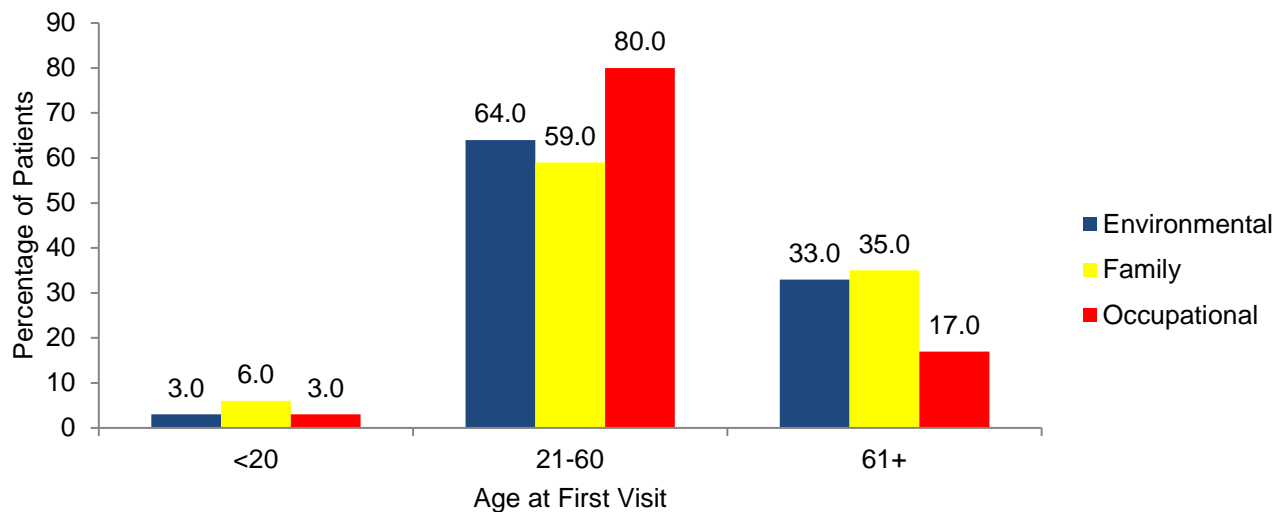


Figure 2.8. Percentage of NYS OHCN patients, by type and age. The majority of occupational patients were between 21 and 60 years of age (78%). A substantially higher percentage of the family patients were 61 years and older (35% vs. 32% environmental and 16% occupational).

Figure 2.8. Percentage of NYS OHCN Patients, by Type and Age, 2006-2015



Race and Ethnicity of Patient Population

Figure 2.9. Percentage of NYS OHCN patients, by race and ethnicity and geographic region. Of the patients seen statewide, 52,790 (78%) were white Non-Hispanic, 6,924 (10%) were black Non-Hispanic, 1,129 (2%) were Asian and 5,401 (8%) were Hispanic. Again, these percentages varied by whether the patients were from NYS outside of NYC, where 86% of the Clinic patients were white, versus NYC where only 37% of the Clinic patients were white. The race of the patients also varied by whether they were symptomatic or group screening patients - with a higher percentage of non-whites seen as symptomatic patients (data not shown).

Figure 2.9. Percentage of NYS OHCN Patients by Race and Ethnicity and Geographic Region, 2006-2015

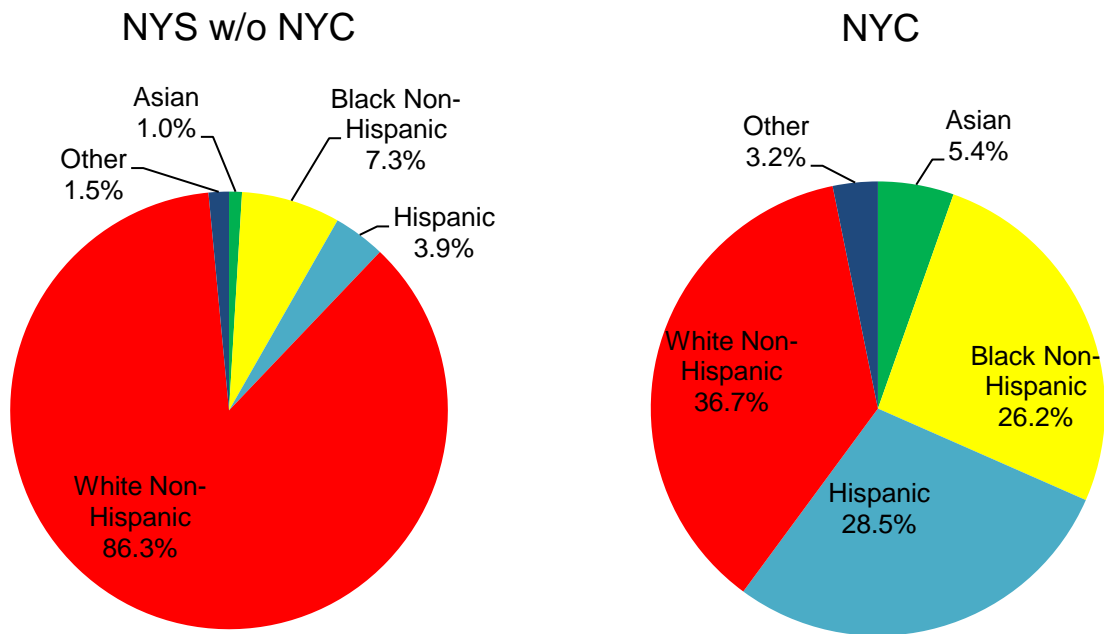
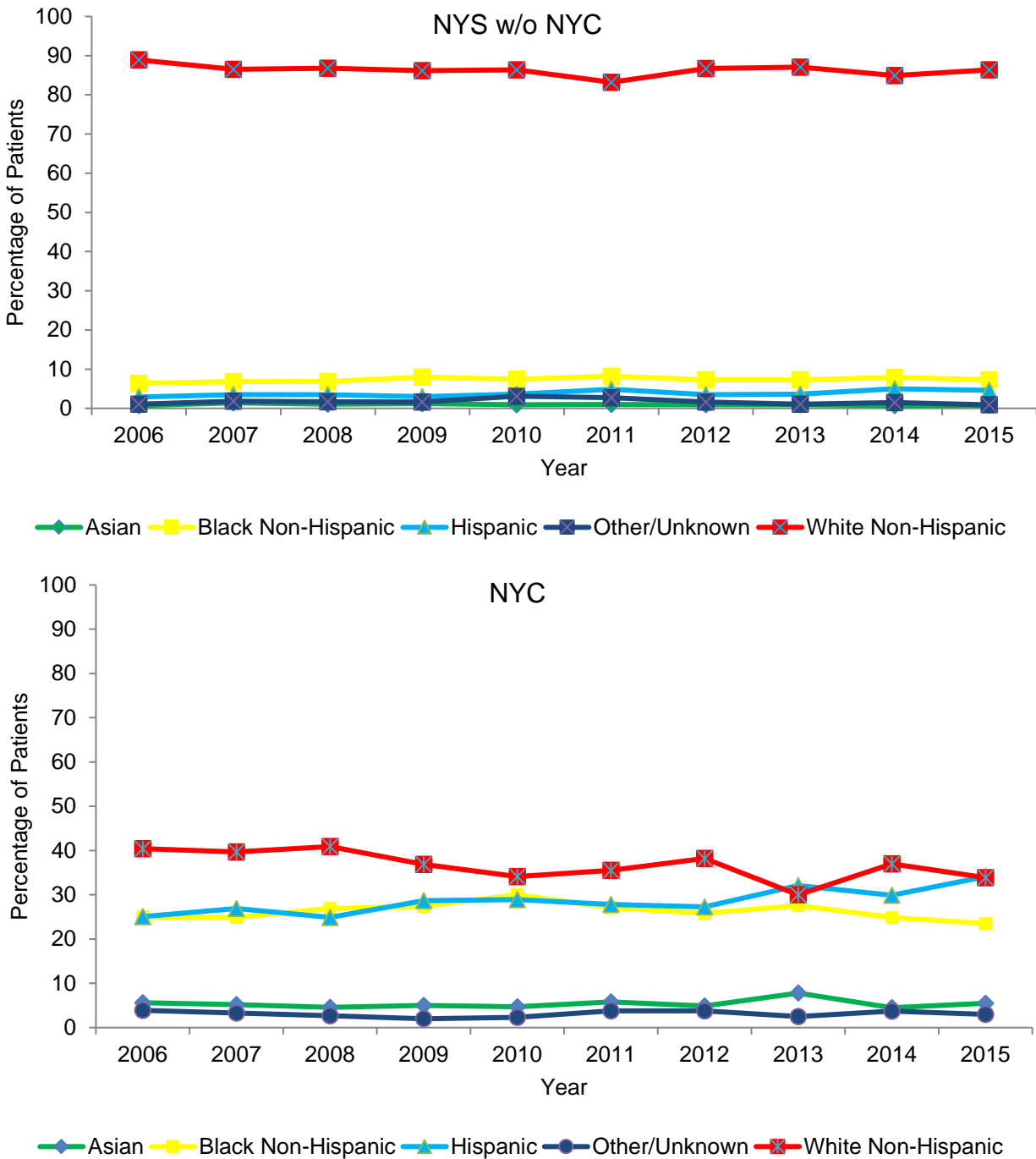


Figure 2.10. Percentage of NYS OHCN patients, by race and ethnicity, geographic region and year. From 2006 through 2015, the percentages of patients by ethnicity have remained relatively constant, although from 2012 to 2013 the percentage of white patients from NYC decreased by about 21% and the percentages of the other ethnicities, increased slightly.

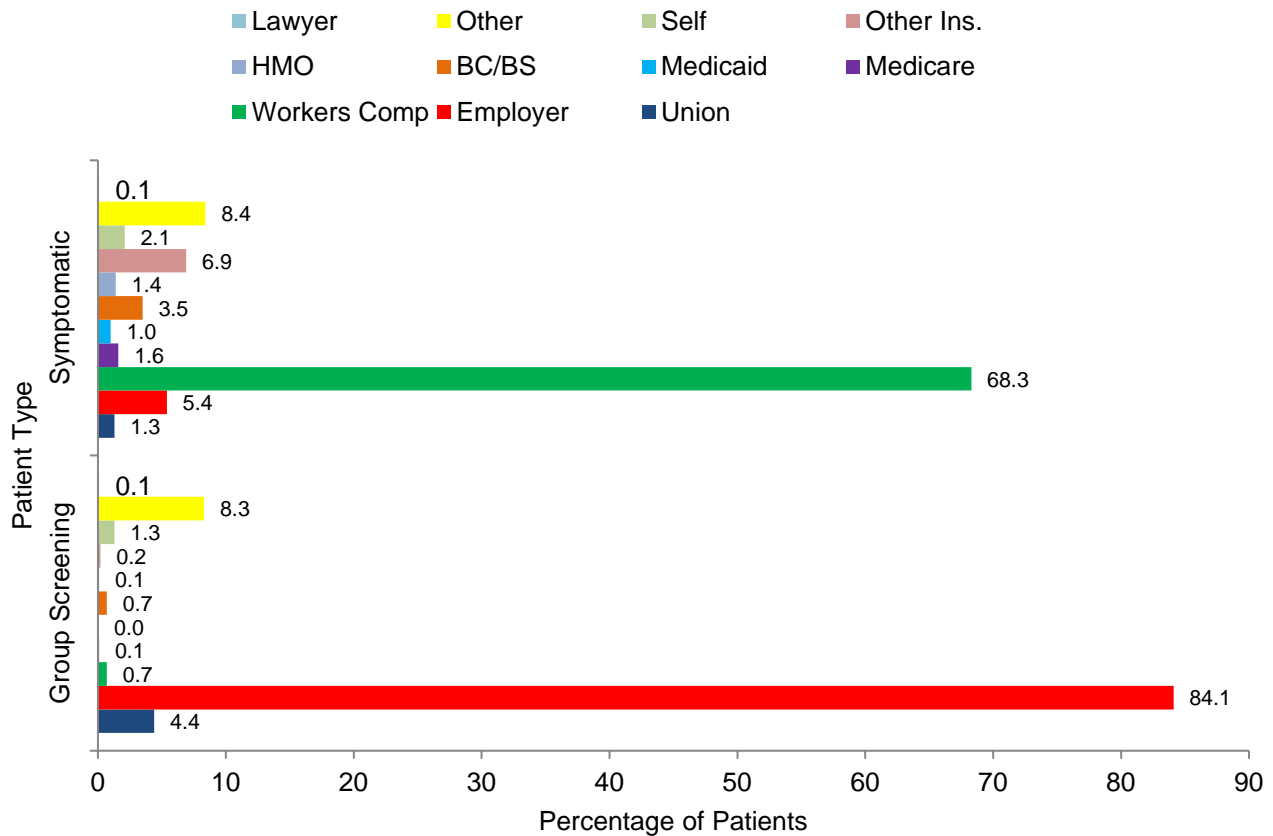
Figure 2.10. Percentage of NYS OHCN Patients, by Race and Ethnicity, Geographic Region and Year, 2006-2015



Source of Payment for Services

Figure 2.11. Percentage of NYS OHCN patients, by source of payment and patient type. Among group screening patients, the employer was primarily responsible for payment for clinical services (84% vs. 5.4% of symptomatic patients). Among those patients seen for symptoms, the Clinics expected Worker's Compensation to cover payment of services for 68% of the patients, while this payment source was expected for less than 1% of the group screening patients. Other payment sources include other grant funds, such as Federal Research funding etc.

Figure 2.11. Percentage of NYS OHCN Patients, by Source of Payment and Patient Type, 2006-2015



Source of Patient Referral

Figure 2.12. Percentage of NYS OHCN patients, by referral source and patient type. The Clinics are primarily centers of referral, not primary care clinics. The majority of screening patients were referred to the Clinics by either their employer or their union (90%), while the majority of symptomatic patients were referred by either a physician, lawyer or employer (45%).

Figure 2.12. Percentage of NYS OHCN Patients, by Referral Source and Patient Type, 2006-2015

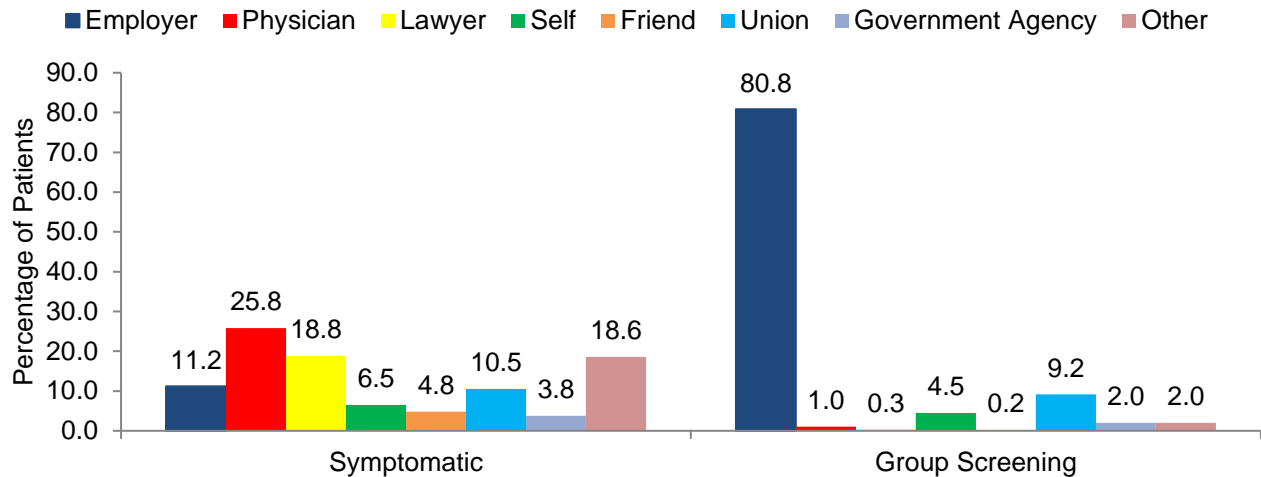
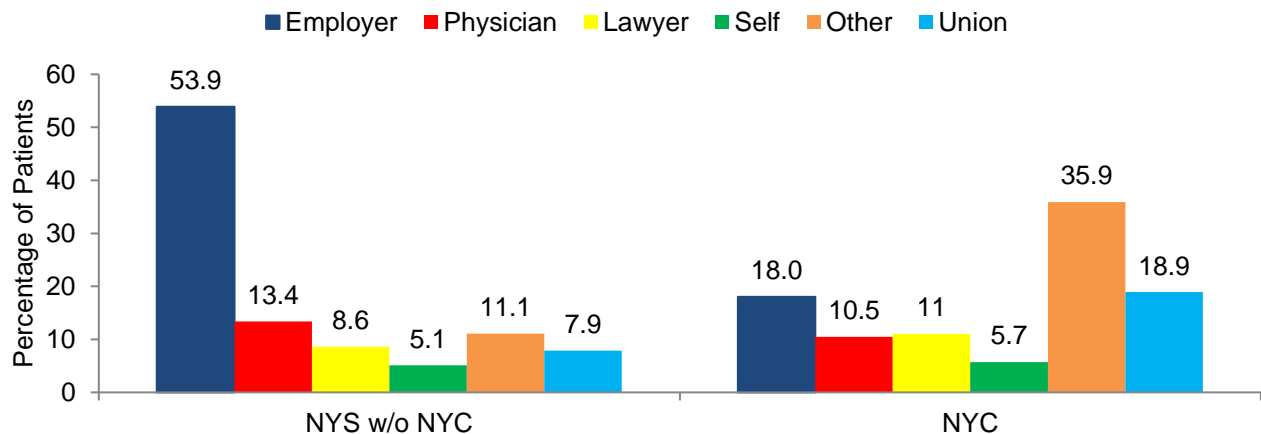


Figure 2.13. Percentage of NYS OHCN patients, by referral source and geographic region. Clinics located in NYC received their referrals primarily from other sources (35.9%), primarily WTC referrals generated directly from the government, unions (19%) and employers (18%); while clinics in NYS, outside of NYC, received referrals primarily from employers (54%) and physicians (13%).

Figure 2.13. Percentage of NYS OHCN Patients Referral, by Source and Geographic Region, 2006-2015



Occupations of Clinic Patients

Figure 2.14. Percentage of occupational NYS OHCN patients, by major occupational group and patient type. Examining the job titles among the occupational Clinic patients showed that 26,851 (47%) were employed in technical, sales and administrative support occupations; followed by 12,262 (21%) in precision production occupations, and 7,667 (13%) as operators, fabricators and laborers (data not shown). Among the symptomatic patients, 7,515 (29%) worked in technical, sales and administrative support occupations, 6,530 (25%) in precision production, 5,018 (20%) as operators and laborers, and 3,116 (12%) as service providers. Among the group screening patients, 19,336 (62%) worked in technical, sales and administrative support occupations, 5,732 (18%) worked in precision production, and 2,649 (9%) as operators and laborers. This does not reflect the distribution of occupations in NYS.

Figure 2.14. Percentage of Occupational NYS OHCN Patients, by Major Occupational Group and Patient Type, 2006-2015

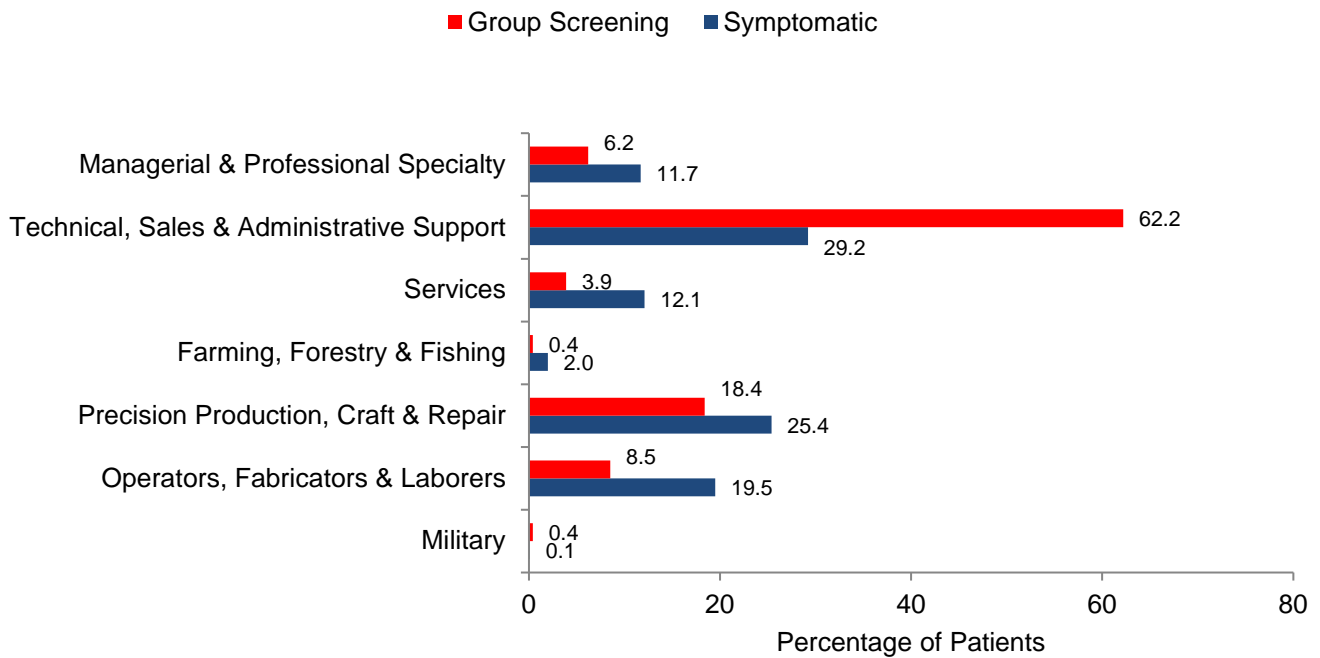


Figure 2.14a. Percentage of occupational NYS OHCN patients in services occupations, by type of service occupation and patient type. Examining the types of jobs among those in the services group showed that 2,553 (58%) were employed in cleaning and maintenance occupations, 1,122 (26%) in food services, and 661 (16%) as personal care workers (data not shown). Among both symptomatic and group screening patients, the largest percentage of patients was from the cleaning and maintenance occupations (53% and 73%).

Figure 2.14a. Percentage of Occupational NYS OHCN Patients in Services Occupations, by Major Occupational Group and Patient Type, 2006-2015

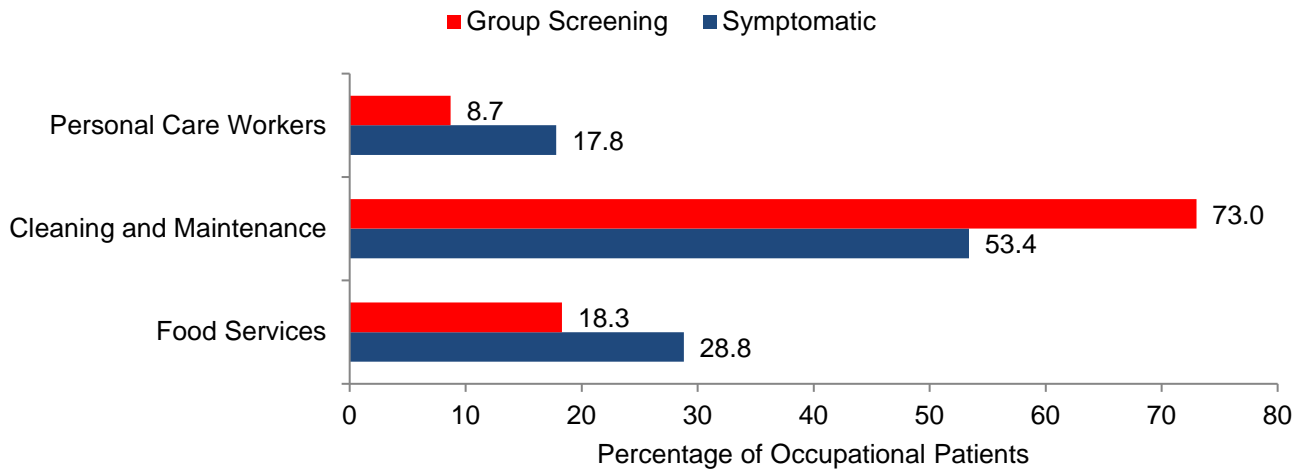


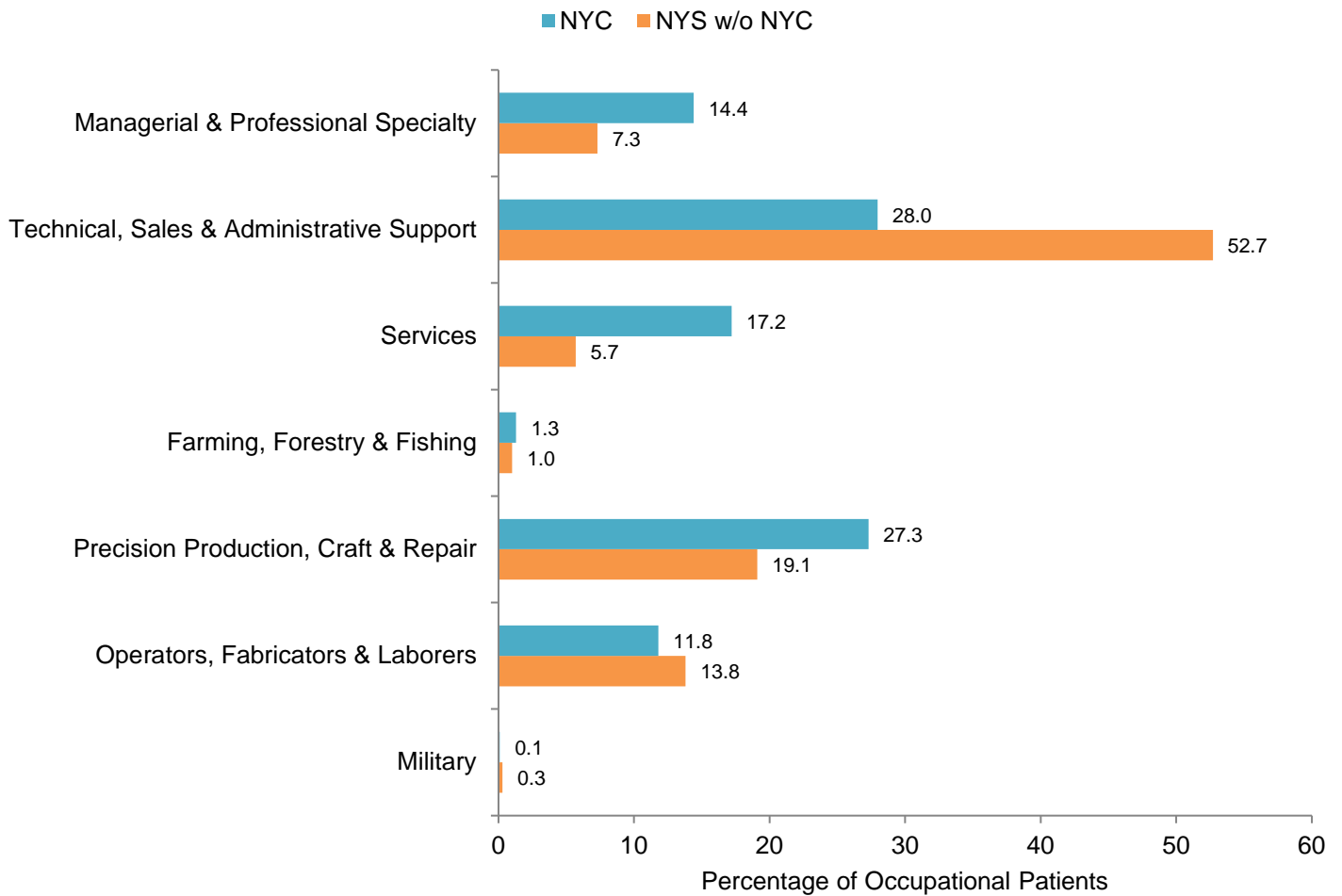
Table 2.14b. Top five most common occupations of NYS OHCN patients in services occupations, by patient type. Among symptomatic patients in services occupations, 1,018 (33%) were employed as janitors or building cleaners, 296 (9.5%) as maids or housekeepers and 229 (7%) as grounds maintenance workers. Among the group screening patients in services occupations, 513 (42%) were employed as janitors or building cleaners, and 234 (19%) as maids and housekeepers.

Table 2.14b. Top Five Most Common Occupations of NYS OHCN Patients In Services Occupations, by Patient Type, 2006-2015 (In Order)

Symptomatic	Group Screening
1. Janitors and Building Cleaners (33%)	1. Janitors and Building Cleaners (42%)
2. Maids and Housekeeping (9.5%)	2. Maids and Housekeeping (19%)
3. Grounds Maintenance Workers (7%)	3. Non-Restaurant Food Servers (8%)
4. Cooks (7%)	4. Grounds Maintenance Workers (7%)
5. Food Preparation Workers (6%)	5. Waiters and Waitresses (3%)

Figure 2.15. Percentage of occupational NYS OHCN patients, by major occupational group and geographic region. The largest percentage of Clinic patients in NYC were employed in precision production, craft and repair occupations and in technical, sales and administrative support occupations (approximately 27% each). The largest percentage of Clinic patients outside of NYC were employed in technical, sales and administrative support occupations (52%), followed by employment in precision production, craft and repair occupations (19%). In NYC, 1,519 (17%) were employed in services occupations compared to 2,593 (6%) in the rest of NYS.

Figure 2.15. Percentage of Occupational NYS OHCN Patients, by Major Occupational Group and Geographic Region, 2006-2015



Service Occupations

Figure 2.15a. Percentage of occupational NYS OHCN patients in services occupations, by type of service occupation and geographic region. Examining the types of jobs among those in the services group showed that 2,553 (58%) were employed in cleaning and maintenance occupations, 1,122 (26%) in food services, and 661 (16%) as personal care workers (data not shown). The largest percentage of Clinic patients were employed in cleaning and maintenance occupations in both NYC (61%) and the remainder of NYS (57%).

Figure 2.15a. Percentage of Occupational NYS OHCN Patients in Services Occupations, by Type of Service Occupation and Geographic Region, 2006-2015

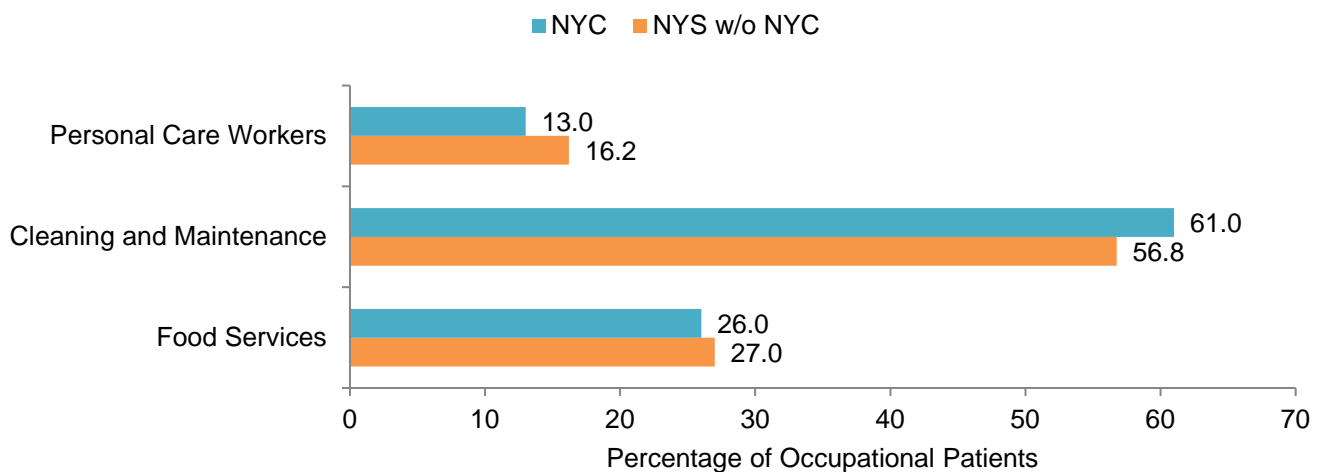


Figure 2.15b. Top five most common occupations of NYS OHCN patients in services industry, by geographic region. The largest percentage of Clinic patients in services occupations were employed as janitors and building cleaners in both NYC (32%) and the remainder of NYS (36%). In NYC, the next largest percentage were employed as maids as housekeepers (22%) while for the remainder of NYS, ground maintenance workers made up the second largest percentage (9%).

Table 2.15b. Top Five Most Common Occupations of NYS OHCN Patients In Services Occupations, by Geographic Region, 2006-2015 (In Order)

NYS w/o NYC	NYC
1. Janitors and Building Cleaners (36%)	1. Janitors and Building Cleaners (32%)
2. Grounds Maintenance Workers (9%)	2. Maids and Housekeeping (22%)
3. Non-restaurant Food Servers (5%)	3. Cooks (7%)
4. Maids and Housekeeping (6%)	4. Food preparation workers (4%)
5. Cooks (5%)	5. Grounds maintenance workers (4%)

Industries of Clinic Patients

Figure 2.16. Percentage of occupational NYS OHCN patients, by major industrial group and patient type. Among those patients with a known occupation seen for occupational exposures, 16,050 (35%) were employed in public administration; followed by 11,848 (26%) in the services industry and 5,145 (11%) in manufacturing at the time of their first visit to the Clinic within each year of the time period (data not shown). Variability among the type of industry also occurred when the patient was seen as part of a group screening. Among those seen in the Clinics as part of a group screening, 12,806 (55%) worked in public administration and 3,450 (15%) worked in the services industry; while among the symptomatic patients, 8,398 (37%) worked in the services industry and 3,932 (17%) worked in manufacturing.

Figure 2.16. Percentage of Occupational NYS OHCN Patients by Major Industrial Group and Patient Type, 2006-2015

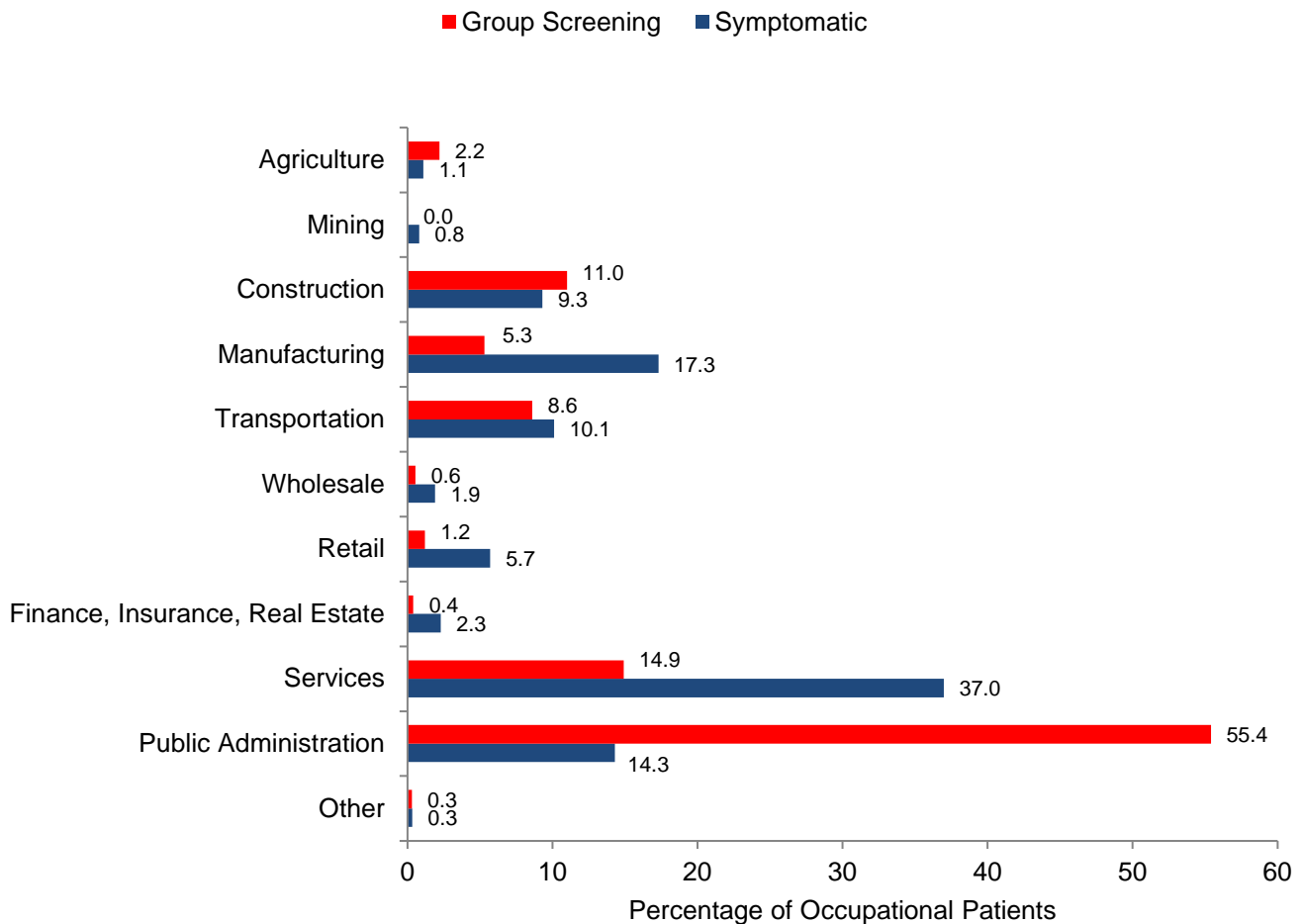


Figure 2.16a. Percentage of occupational NYS OHCN patients, in the services industry, by type of work and patient type. The largest percentage of Clinic patients working in the services industry were employed in health services occupations for both symptomatic patients (40%) and group screening patients (50%), followed by those in educational services (21% for symptomatic and 28% for group screening).

Figure 2.16a. Percentage of Occupational NYS OHCN Patients in the Services Industry, by Type of Work and Patient Type, 2006-2015

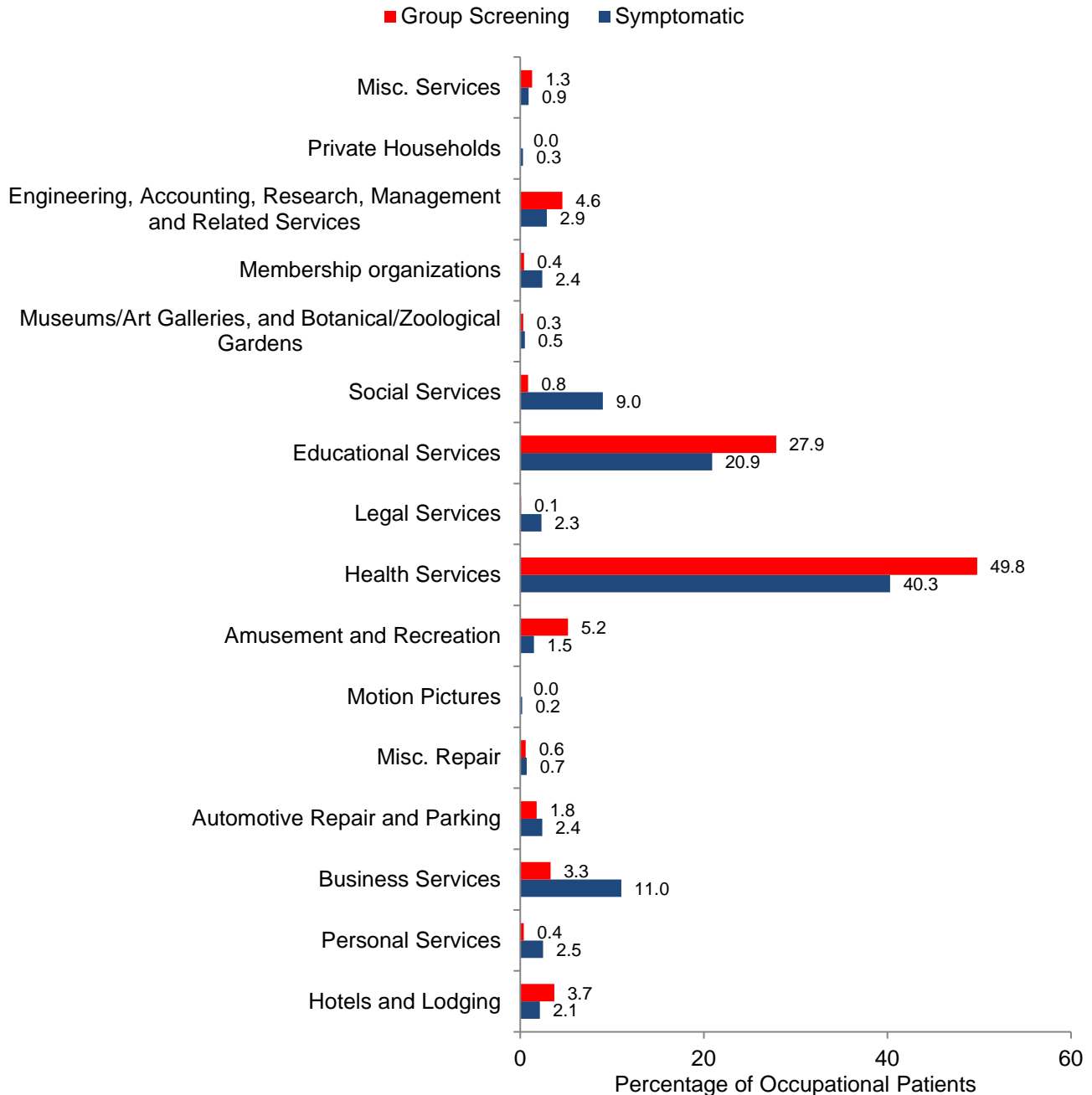


Figure 2.17. Percentage of occupational NYS OHCN patients, by major industrial group and geographic region. In NYC, 3,054 (44%) of occupational patients were employed in the services industry, compared to 8,189 (22%) in the rest of NYS. In contrast, 1,280 (18%) were employed in public administration in NYC, compared to 14,540 (39%) in NYS.

Figure 2.17. Percentage of Occupational NYS OHCN Patients, by Major Industrial Group and Geographic Region, 2006-2015

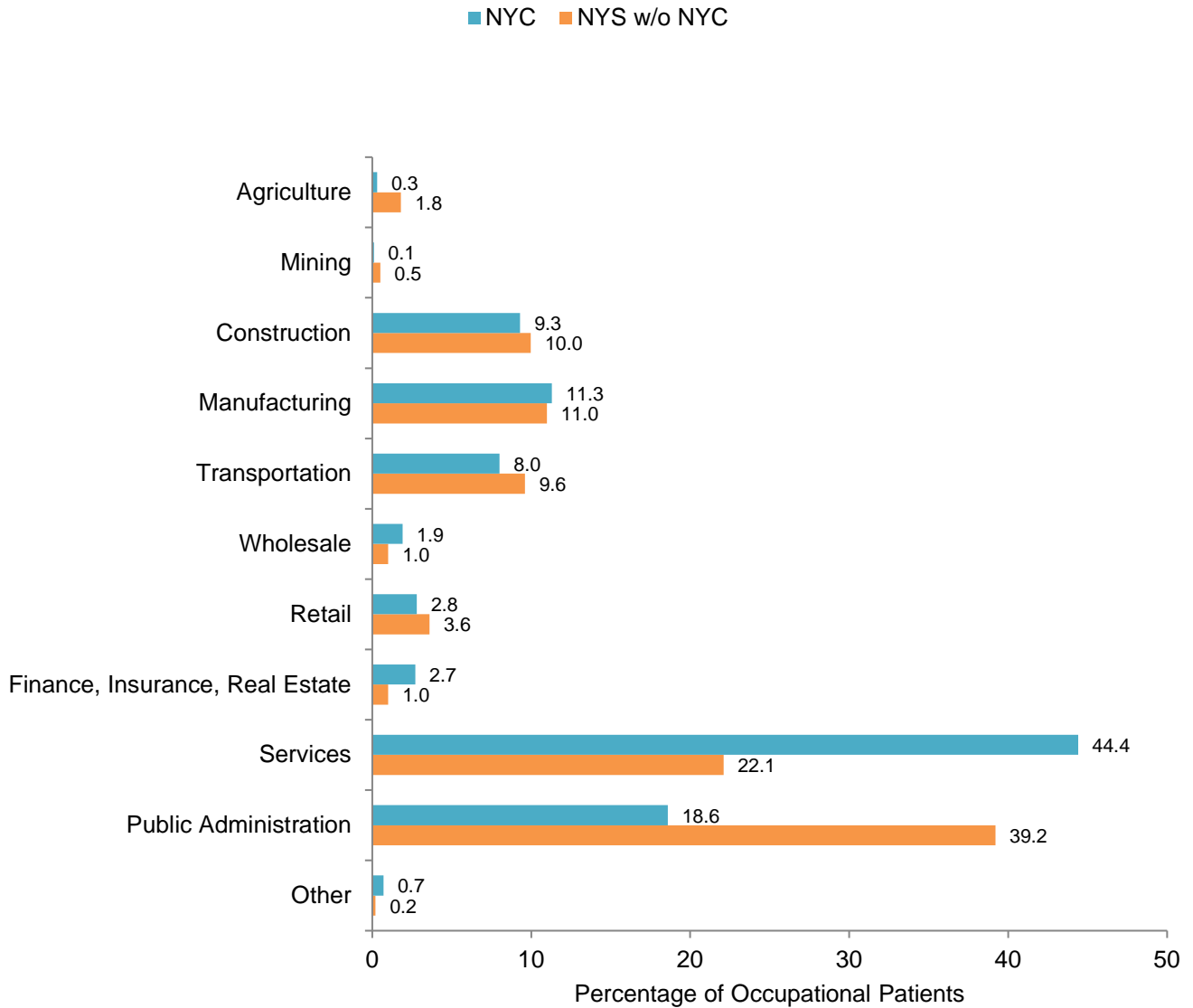
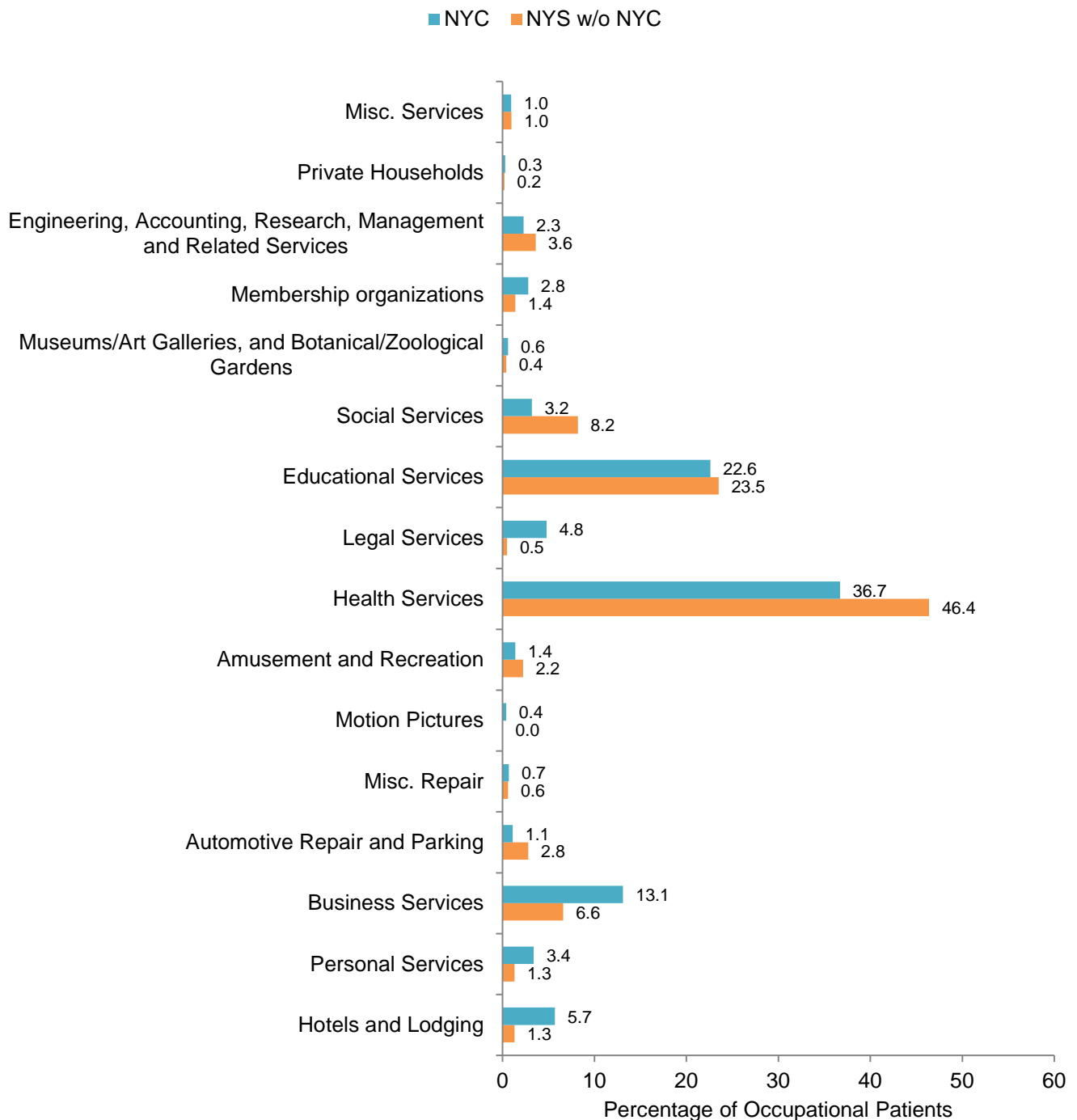


Figure 2.17a. Percentage of occupational NYS OHCN patients in the services industry, by type of work and geographic region. In NYC, 1,120 (37%) of the occupational patients were employed in health services followed by 689 (23%) in educational services. In the remainder of NYS, 3,799 (46%) were employed in health services and 1,926 (23%) in educational services.

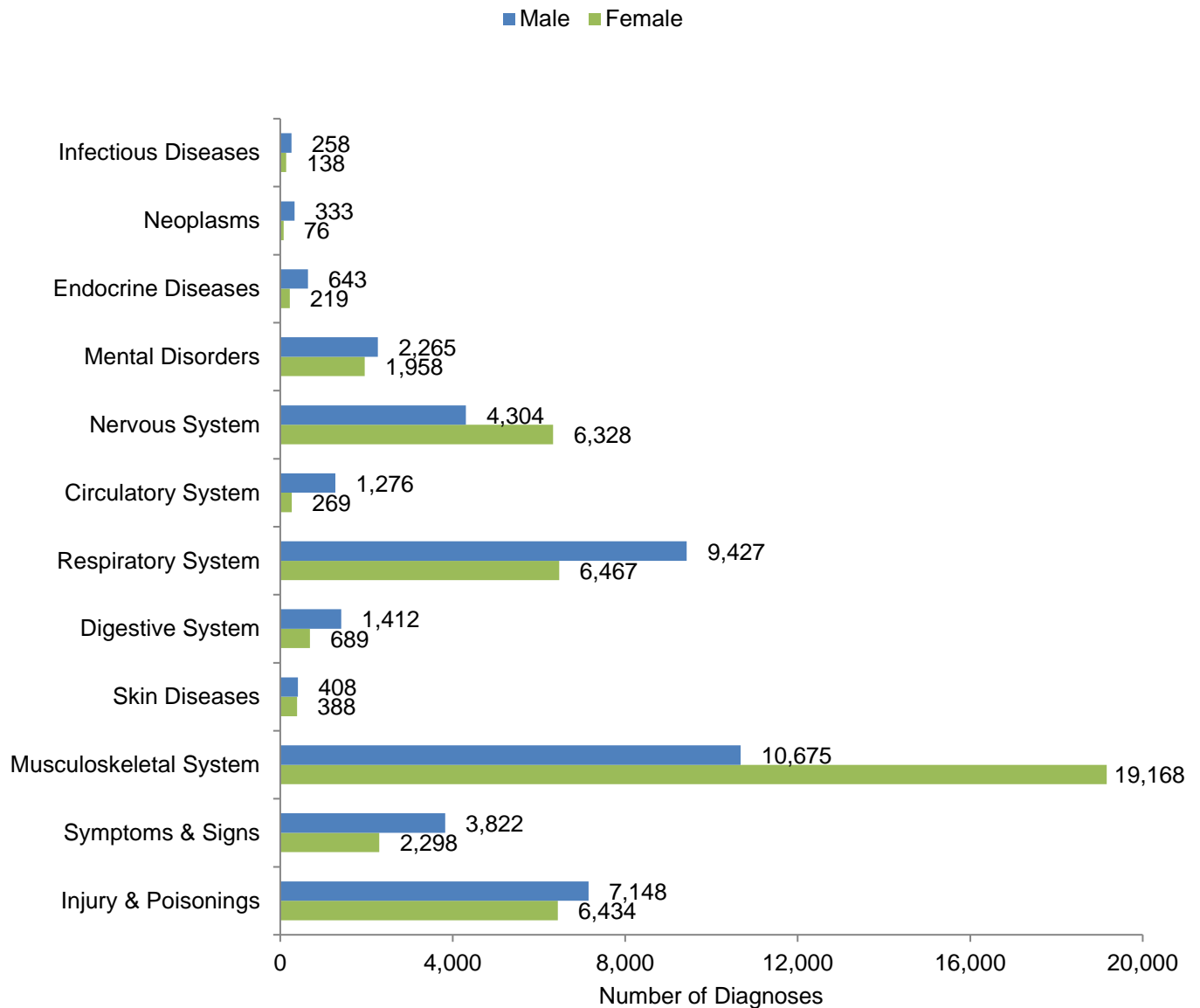
Figure 2.17a. Percentage of Occupational NYS OHCN Patients in the Services Industry, by Type of Work and Geographic Region, 2006-2015



Diagnoses, Selected Illnesses and Conditions of Patients

Figure 3.1. Number of diagnoses in NYS OHCN patients, by main ICD-9-CM diagnostic categories and sex. Overall, there were 141,029 diagnoses made for the 67,506 patients seen by the Clinic Network between 2006 and 2015. Males were seen primarily for diseases of the musculoskeletal system (n=10,675), respiratory system (n=9,427), injuries and poisonings (n=7,148) and nervous system diseases (n=4,304). Females were seen primarily for diseases of the musculoskeletal system (n=19,168), diseases of the respiratory system (n=6,467) and injuries and poisonings (n=6,434). There were 54,214 NYS OHCN diagnoses with V-codes (data not shown). These were patients who were not currently sick but visited the NYS OHCN for some specific purpose, such as to receive prophylactic vaccinations or to be screened for conditions for which the patients were at high risk.

Figure 3.1. Number of Diagnoses in NYS OHCN Patients, by Main ICD-9-CM Diagnostic Categories and Sex, 2006-2015



Diseases of the Nervous System and Sense Organs (ICD-9-CM Codes 320-389)

Figure 3.10. Number of diagnoses of diseases of the nervous system and sense organs in NYS OHCN patients, by year and work-relatedness. There were 10,632 diagnoses of diseases in this category, of which 88% were work-related and 8% were possibly work-related. The majority of the diagnoses in this category were carpal tunnel syndrome (n=3,911) of which 97% were work-related; cubital tunnel syndrome (n=2,241) of which 97% were work-related; central nervous system disorders (n=1,486) of which 82% were work-related; noise-induced hearing loss (n=901) of which 56% were work-related; and nerve root/plexus disorders (n=668) of which 95% were work-related (data not shown).

Figure 3.10. Number of Diagnoses of Diseases of the Nervous System and Sense Organs in NYS OHCN Patients, by Year and Work-relatedness, 2006-2015

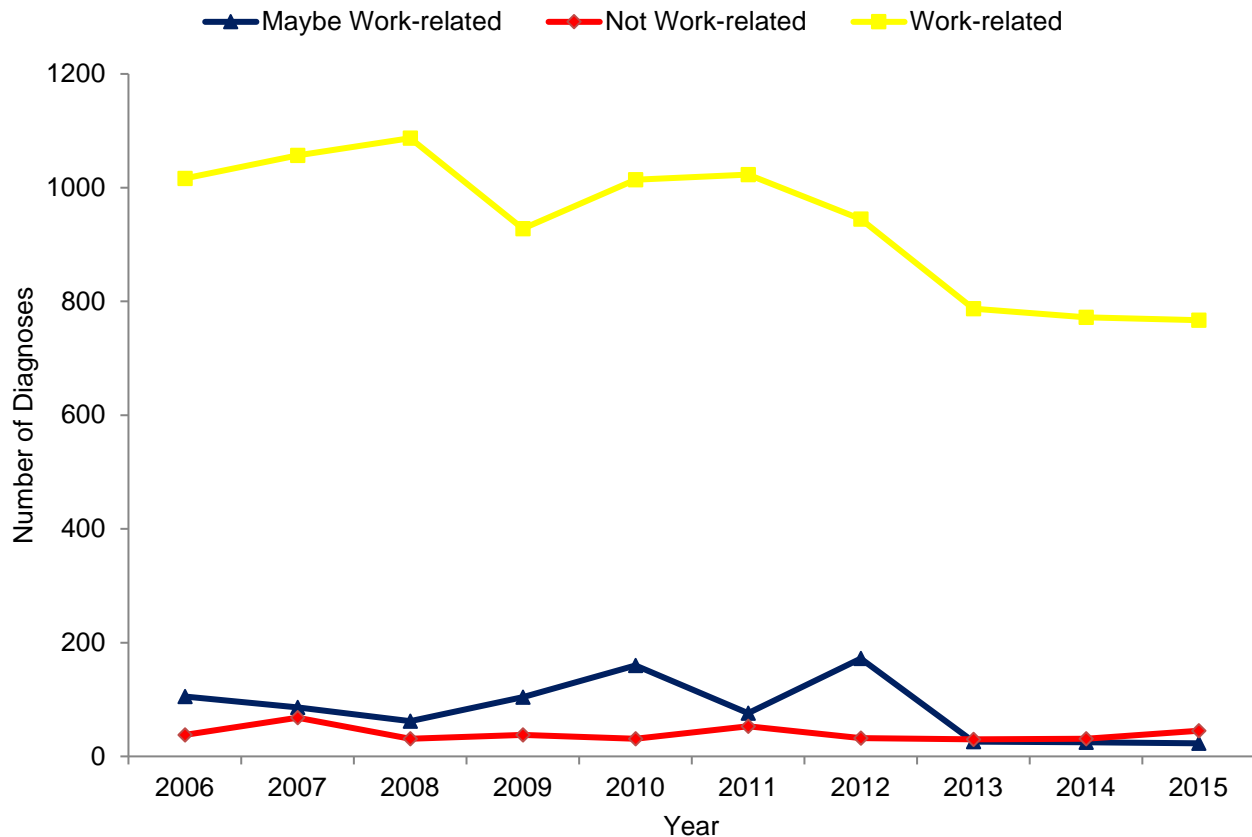
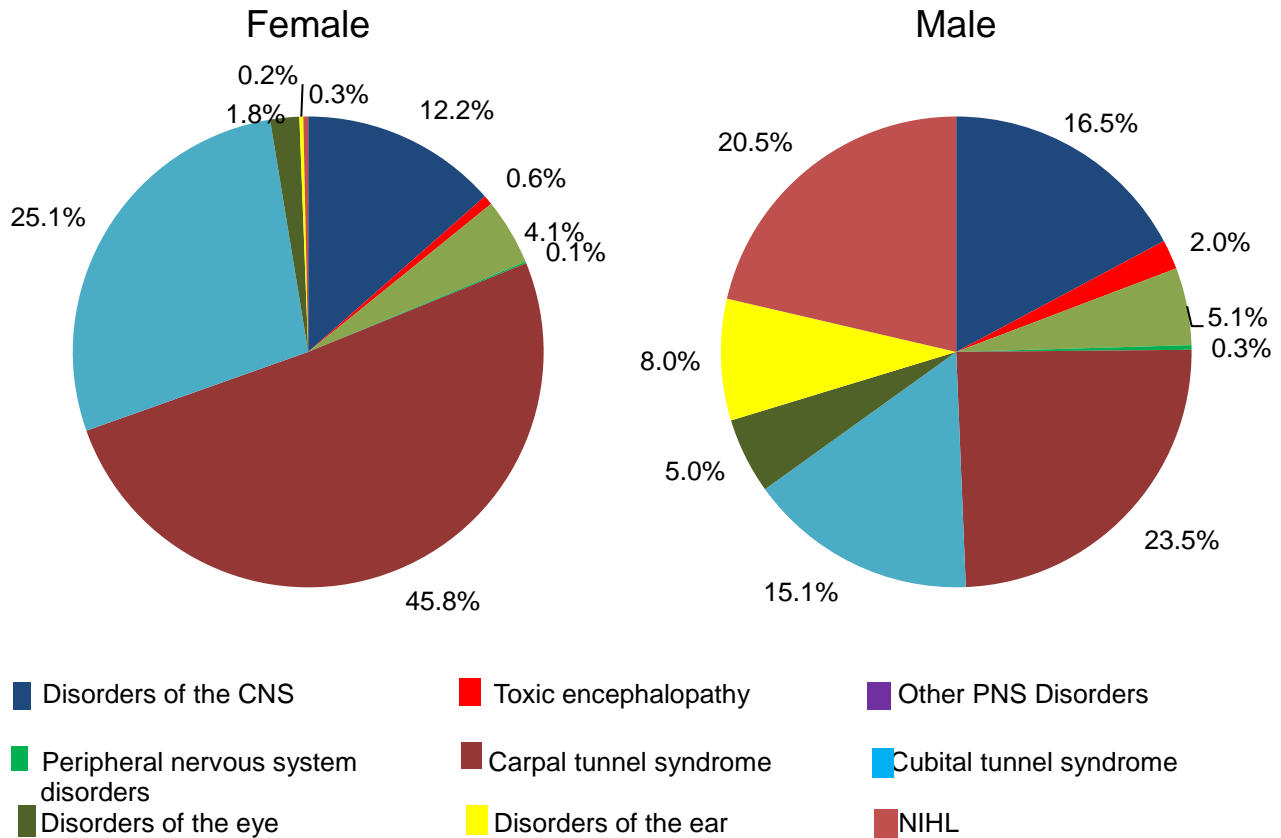


Figure 3.11. Percentage of diagnoses of diseases of the nervous system and sense organs in NYS OHCN patients, by type of disease and sex. More females were diagnosed with nervous system disorders (n=6,328) as compared to men (n=4,304). The top diagnoses for men were carpal tunnel syndrome (23%) followed by noise-induced hearing loss (20%), while the top diagnoses for females were carpal tunnel syndrome (46%) followed by cubital tunnel syndrome (25%). Among the noise induced hearing loss diagnoses, 95% resided in NYS outside of NYC (data not shown).

Figure 3.11. Percentage of Diagnoses of Diseases of the Nervous System and Sense Organs in NYS OHCN Patients, by Type of Disease and Sex, 2006-2015



Diseases of the Respiratory System (ICD-9-CM Codes 460-519)

Figure 3.15. Number of respiratory system disease diagnoses in NYS OHCN patients, by year. There were 15,894 diagnoses of a disease of the respiratory system. Of these diagnoses, 64% were work-related and another 8% were possible work-related.

Figure 3.15. Number of Respiratory System Disease Diagnoses in NYS OHCN Patients, by Year, 2006-2015

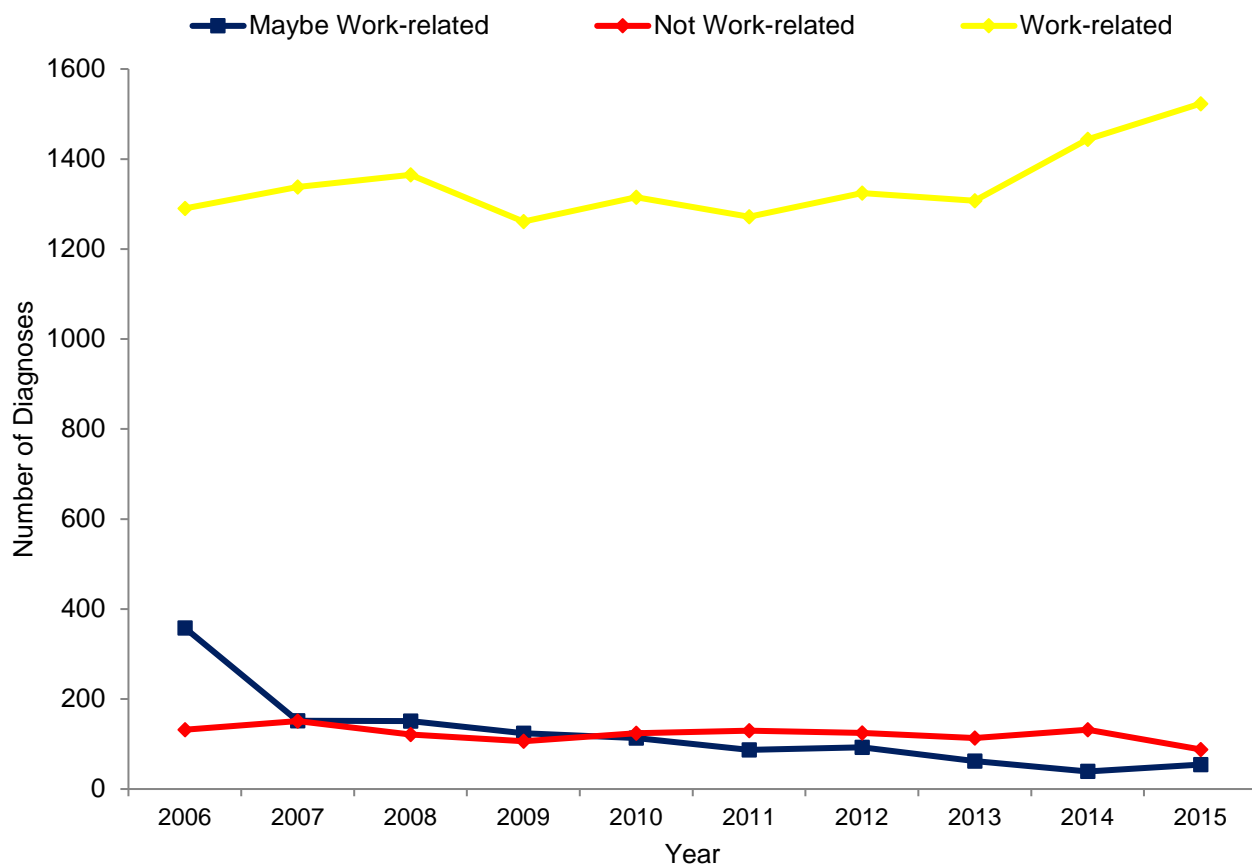


Figure 3.18. Percentage of work-related asthma diagnoses in NYS OHCN patients, by industry of employment. There were 4,467 work-related asthma diagnoses. Among those with a known occupation, the majority of diagnoses occurred among those employed in the services industry (33%), followed by public administration industry (22%). The principle occupations at risk for work-related asthma were service occupations (8%), administrative support (7%), and machine operators (7%) (data not shown).

Figure 3.18. Percentage of Work-related Asthma Diagnoses in NYS OHCN Patients, by Industry of Employment, 2006-2015

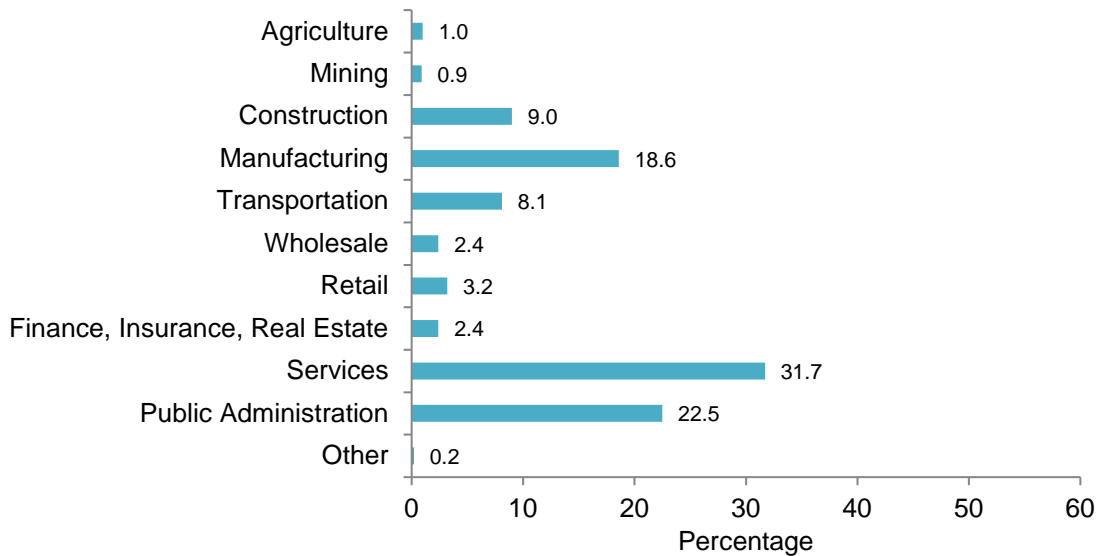


Figure 3.18a. Percentage of work-related chronic obstructive pulmonary disease (COPD) and allied conditions diagnoses, in NYS OHCN patients, by industry of employment. There were 5,414 diagnoses of work-related COPD. Among those with a known occupation, the majority of COPD diagnoses occurred among those employed in the services industry (30%) followed by those in the public administration industry (21%). The principle occupations at risk for work-related COPD included service occupations (9%), professional specialties (8%) and machine operators (7%) (data not shown).

Figure 3.18a. Percent of Work-related Chronic Obstructive Pulmonary Disease and Allied Conditions Diagnoses, by Industry of Employment, 2006-2015

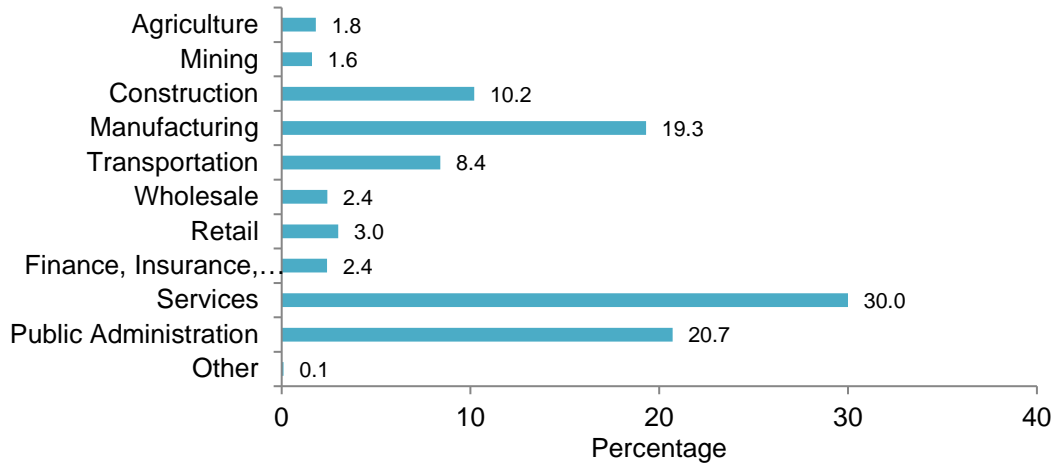
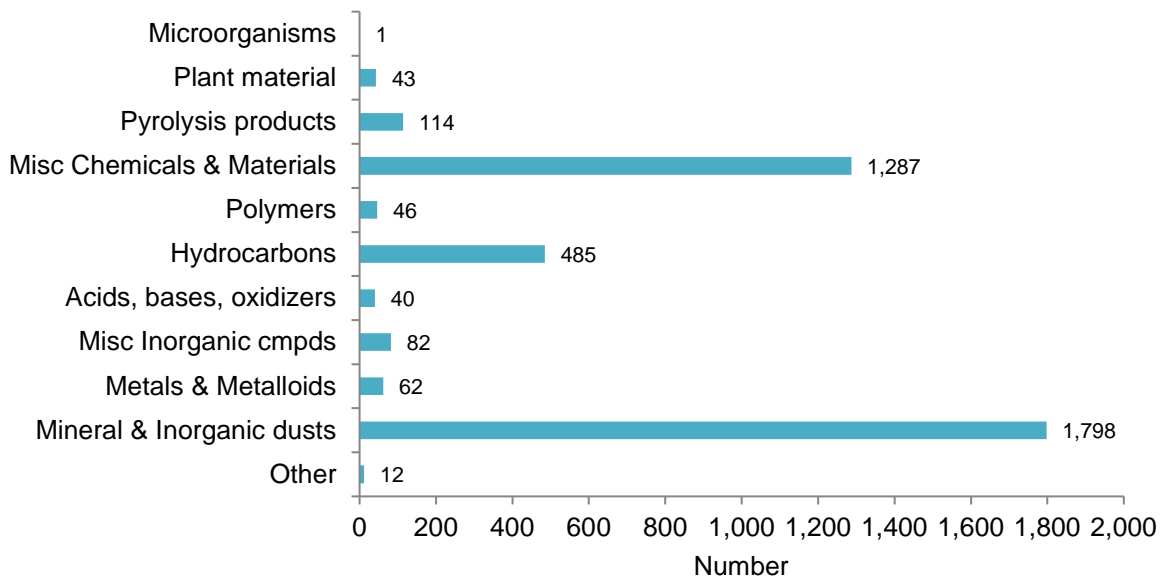


Figure 3.19. Number of Work-related Asthma Diagnoses in NYS OHCN Patients, by Source of Exposure. The majority of work-related asthma diagnoses were due to exposures to mineral and inorganic dusts (N= 1,798), followed by miscellaneous chemicals and materials (N= 1,287) and hydrocarbons (N=485).

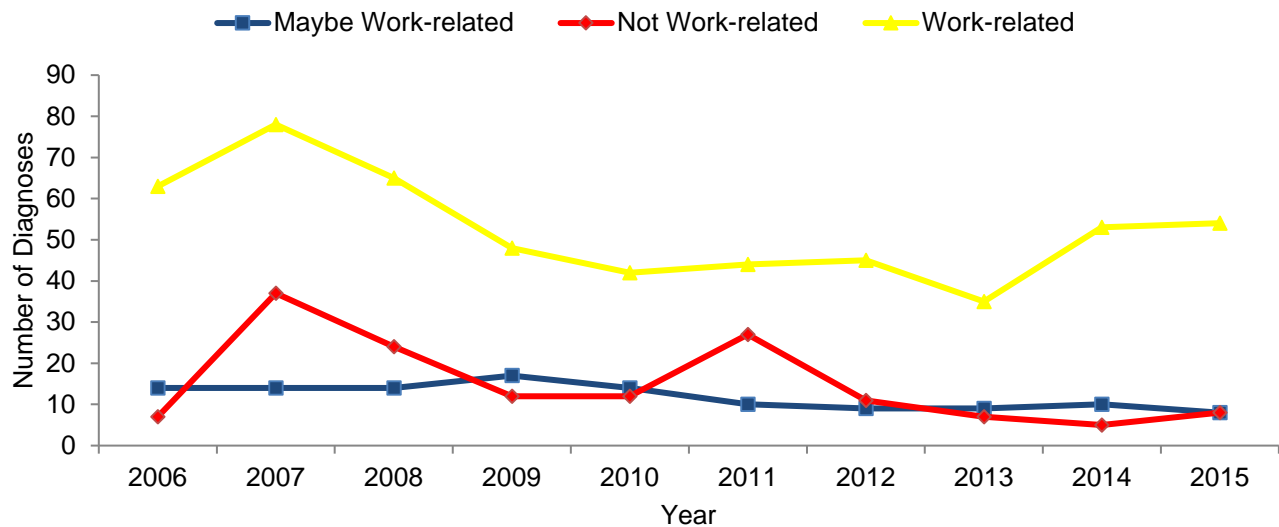
Figure 3.19. Number of Work-related Asthma Diagnoses, by Source of Exposure, 2006-2015



Diseases of the Skin and Subcutaneous Tissue (ICD-9-CM Codes 680-709)

Figure 3.21. Number of skin and subcutaneous tissue disease diagnoses in NYS OHCN patients, by year and work-relatedness. There were 796 diagnoses of a disease of the skin and subcutaneous tissues, of which 66% were work-related and 15% were possibly work-related. There were 469 diagnoses of contact dermatitis (ICD-9-CM Code 692) of which 77% were work-related (data not shown). Another 13 were of dermatoses including actinic keratosis and seborrheic keratosis (ICD-9-CM Codes 702.0 and 702.1). These were often identified in skin cancer screenings conducted by the Clinics.

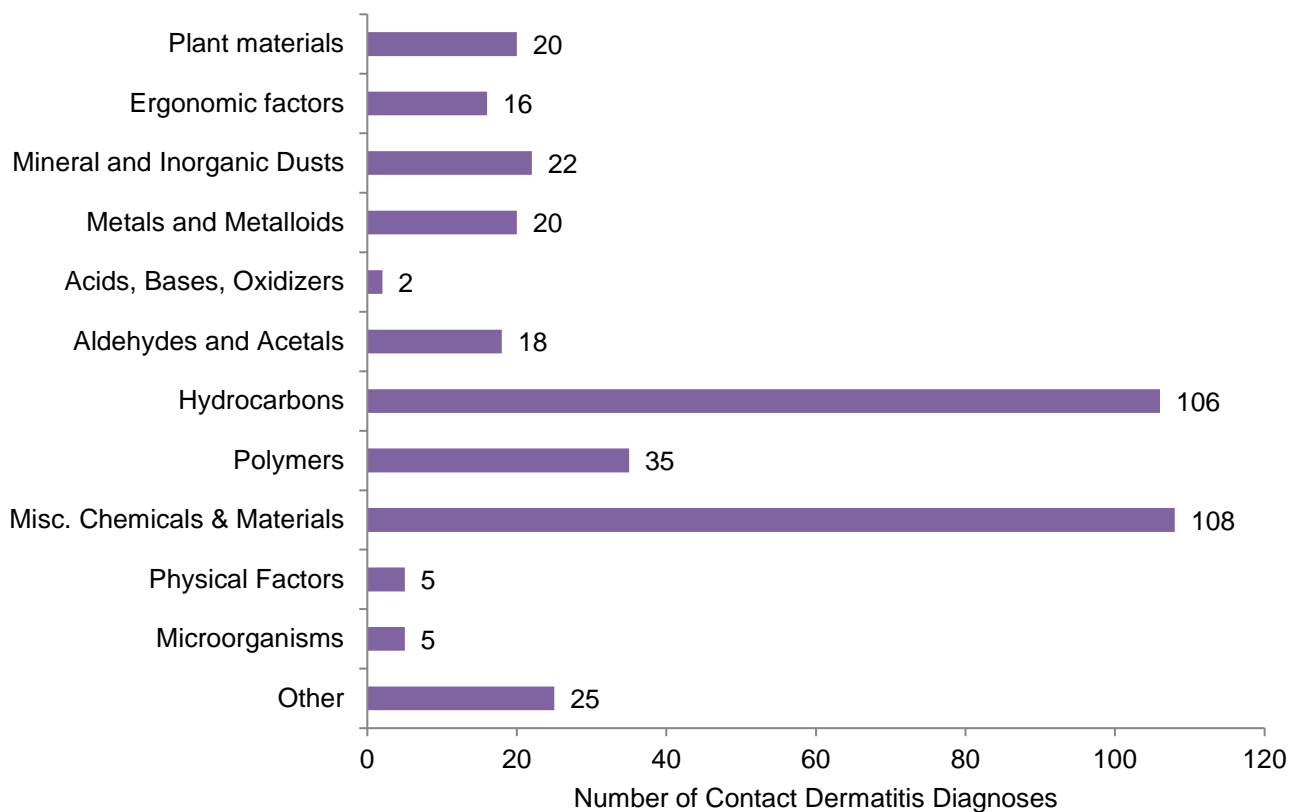
Figure 3.21. Number of Skin and Subcutaneous Tissue Disease Diagnoses in NYS OHCN Patients, by Year and Work-relatedness, 2006-2015



Contact Dermatitis

Figure 3.22. Number of contact dermatitis diagnoses in NYS OHCN patients, by source of exposure. There were 469 diagnoses of contact dermatitis. Exposures among these patients included 106 hydrocarbon exposures, including 17 exposures to cutting oils and 61 exposures to non-specified solvents. Another 108 exposures were to miscellaneous chemicals and materials including 39 exposures to non-specified chemicals such as chemical dust, 10 exposures to cleaning materials, and 10 to indoor air pollutants. Patients could be exposed to more than one agent.

Figure 3.22. Number of Contact Dermatitis Diagnoses in NYS OHCN Patients, by Source of Exposure, 2006-2015



Diseases of the Musculoskeletal System and Connective Tissue (ICD-9-CM Codes 710-739)

Figure 3.23. Number of musculoskeletal system and connective tissue disease diagnoses in NYS OHCN patients, by year and work-relatedness. There were 29,843 diagnoses of a disease of the musculoskeletal system of which 95% were work-related and another 3% were possibly work-related. In general, there was a steady decline in diagnoses of these conditions from 2007 through 2009, possibly related to the recession of the late 2000s and then a gradual increase in the number of diagnoses was observed after 2012. Among the diagnoses of work-related musculoskeletal conditions, 18,266 (64%) were among females; 14,981 (53%) were among NYC residents; 15,343 (51%) were among whites; 5,980 (20%) among blacks, and 5,764 (19%) among Hispanics (data not shown). Overall there were 17,306 patient visits where diseases in this category were diagnosed.

Figure 3.23. Number of Skin Musculoskeletal System and Connective Tissue Disease Diagnoses in NYS OHCN Patients, by Year and Work-relatedness, 2006-2015

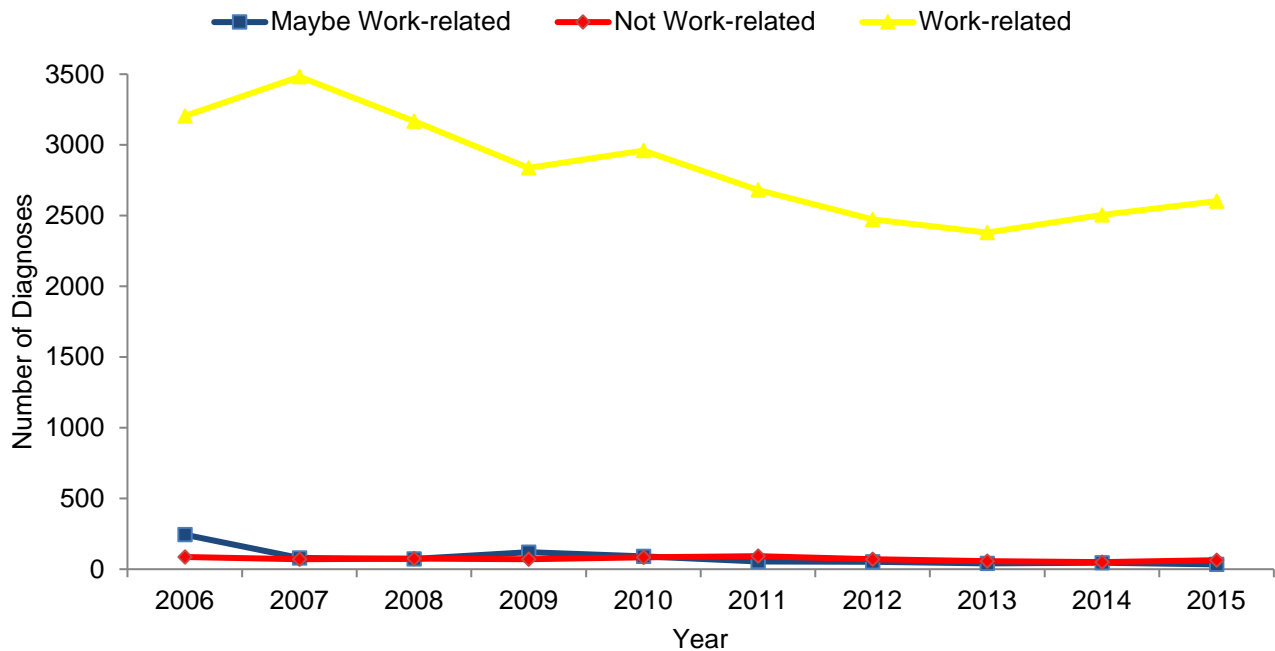


Figure 3.24. Percentage of work-related musculoskeletal system and connective tissue disease diagnoses in NYS OHCN patients, by occupation and ethnicity. Nineteen percent of those with diagnoses of musculoskeletal diseases worked in services occupations; the majority of whom were nursing aides (n=1,758) and janitors and cleaners (n=586). There were 5,980 diagnoses among blacks. Thirty-three percent of all musculoskeletal disease diagnoses among blacks occurred in service occupation workers. There were 3,812 diagnoses (13%) among those who worked in executive and professional specialty occupations with the majority of these diagnosis being among teachers/instructors (n=323) and registered nurses (n=321). Thirty percent of the diagnoses of musculoskeletal diseases among Asians and 25% of the diagnoses among whites were those employed in executive and professional specialty occupations. There were 3,589 musculoskeletal disease diagnoses among those who worked in administrative support occupations, of which more than half (53%) were white and 30% were black; 2,851 cases were diagnosed among machine operators who were predominantly Hispanic (52%). Among the machine operators diagnosed with musculoskeletal diseases, 461 worked with textile sewing machines.

Figure 3.24. Percentage of Work-related Musculoskeletal System and Connective Tissue Disease Diagnoses in NYS OHCN Patients, by Occupation and Race/Ethnicity, 2006-2015

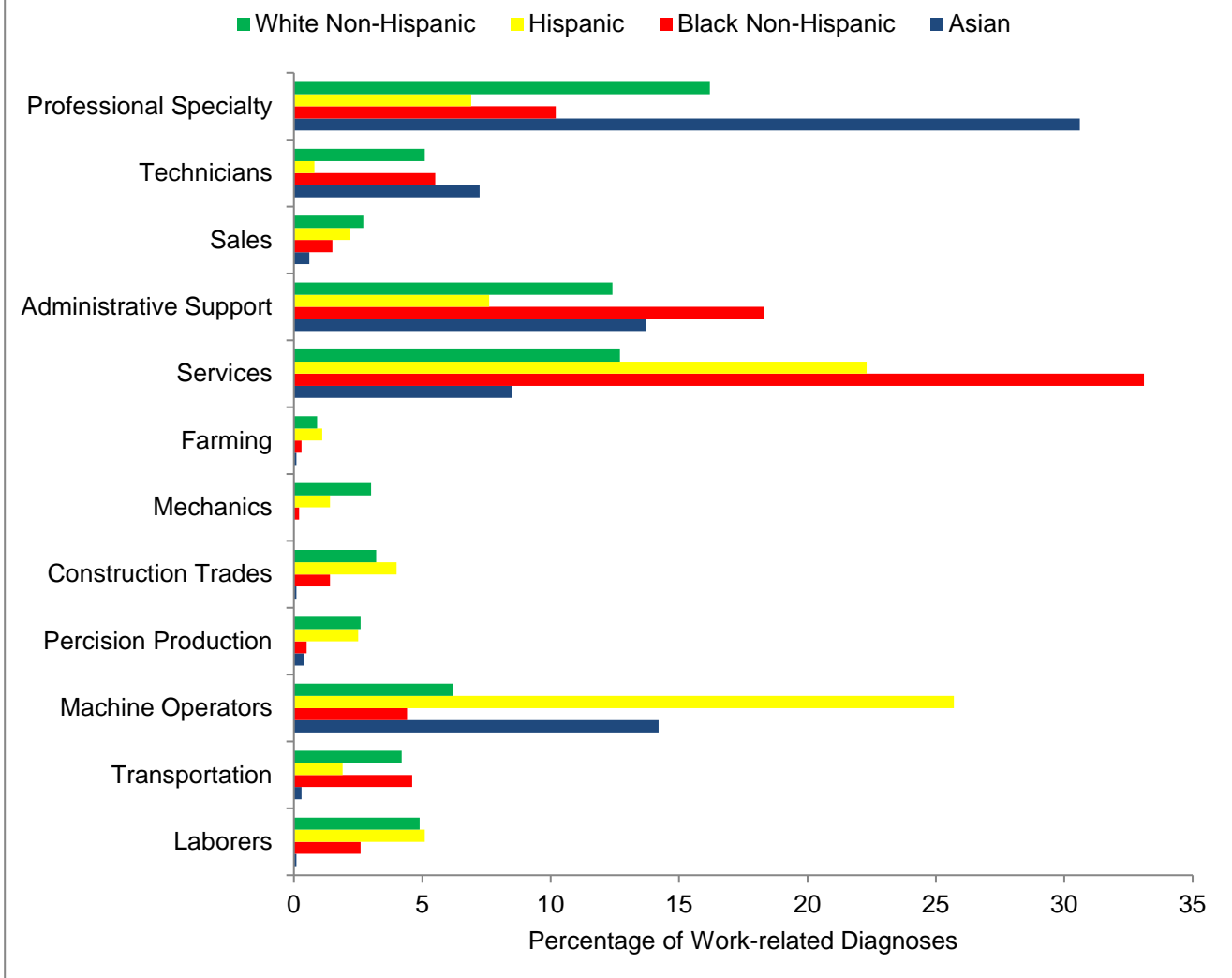
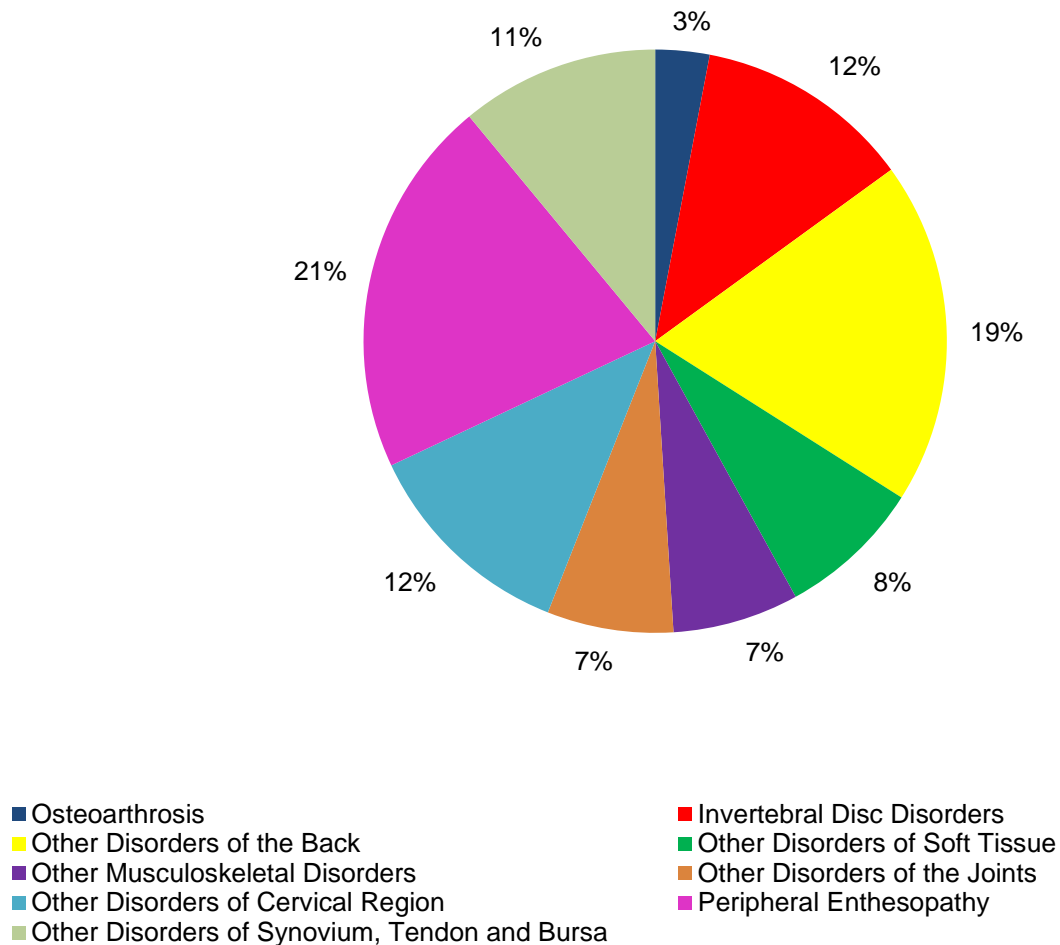


Figure 3.25. Percentage of musculoskeletal system and connective tissue disease diagnoses in NYS OHCN patients, by type of disease. There were 3,500 diagnoses of disorders of the cervical region (ICD-9-CM Code 723) of which 1,798 were cervicalgia and 1,269 were cervical radiculitis. There were 5,791 diagnoses of other disorders of the back (ICD-9-CM Code 724) of which 2,771 were lumbago and 1,178 were lumbosacral neuritis, not otherwise specified. Twenty percent (n=6,359) of the diagnoses were peripheral enthesopathies (ICD-9-CM Code 726), including 1,299 with rotator cuff syndrome, 1,950 with enthesopathy of the elbow (784 with medial epicondylitis and 1,166 with lateral epicondylitis), 1,081 diagnoses of enthesopathy of the wrist, and 145 with unspecified enthesopathy. An additional 3,292 diagnoses were made for other disorders of the synovium (ICD-9-CM Code 727), of which 1,099 were de Quervain's disease and 851 were other tenosynovitis of the hand and wrist. Other disorders of the soft tissue (ICD-9-CM Code 729) accounted for 2,507 diagnoses including 1,759 for myalgia and myositis.

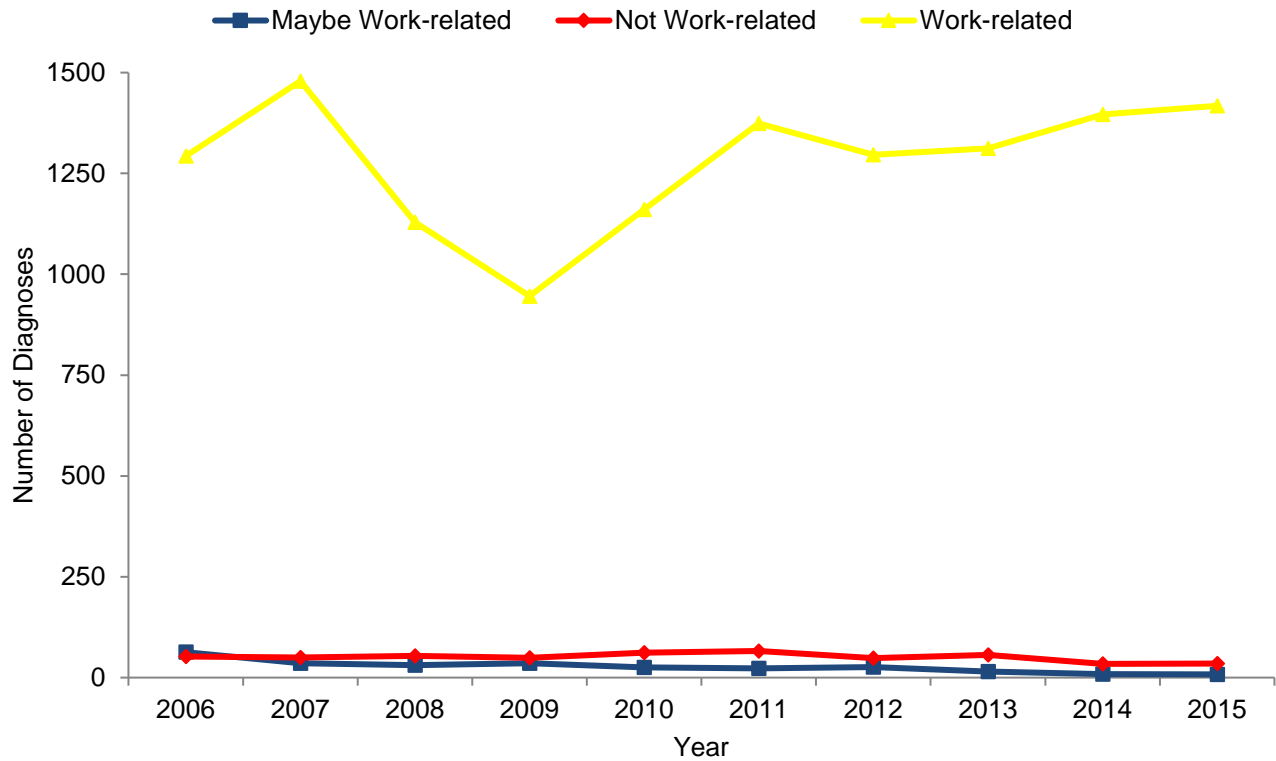
Figure 3.25. Percentage of Musculoskeletal System and Connective Tissue Disease Diagnoses in NYS OHCN Patients, by Type of Disease, 2006-2015



Injuries and Poisonings (ICD-9-CM Codes 800-999)

Figure 3.27. Number of injury and poisoning diagnoses in NYS OHCN patients, by year and work-relatedness. There were 13,352 diagnoses of injuries or poisonings, seen in 11,245 patient visits. 94% of these diagnoses were work-related and another 2% were possibly work-related. Diagnoses of injuries and poisoning saw a decline during 2007 and 2009, also possibly due to the recession of the late 2000s, before gradually increasing until 2015

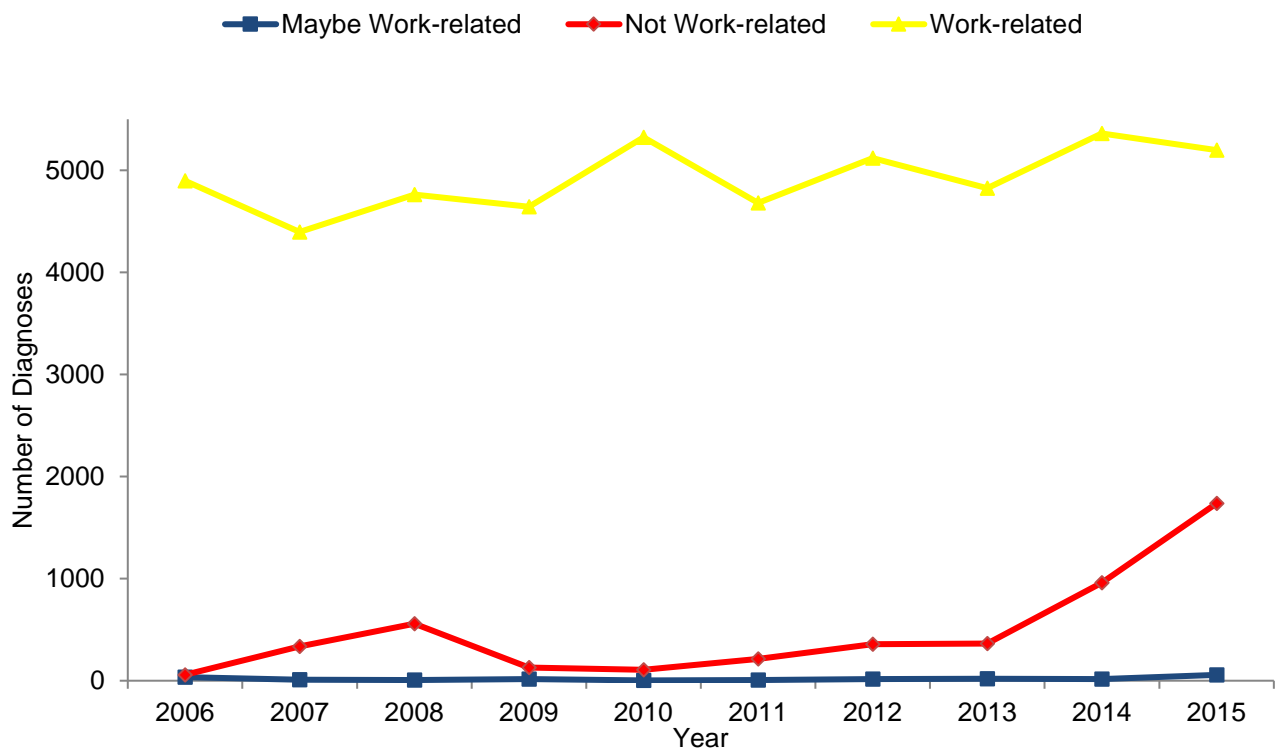
Figure 3.27. Number of Injury and Poisoning Diagnoses in NYS OHCN Patients, by Year and Work-relatedness, 2006-2015



V-Codes (ICD-9-CM Codes V01-V84)

Figure 3.30. Number of diagnoses for patients not currently sick, seen for a specific purpose in NYS OHCN patients, by year and work-relatedness. Patients recorded with V-codes in their medical records by the NYS OHCN were patients who were not sick and encountered the NYS OHCN for some specific purpose. This included prophylactic vaccinations or screening for conditions for which the patients were at high risk (such as Lyme Disease, asbestos screenings, and lead screenings). There were 54,214 diagnoses classified with V-codes; 48,765 (89%) were seen as part of group screenings.

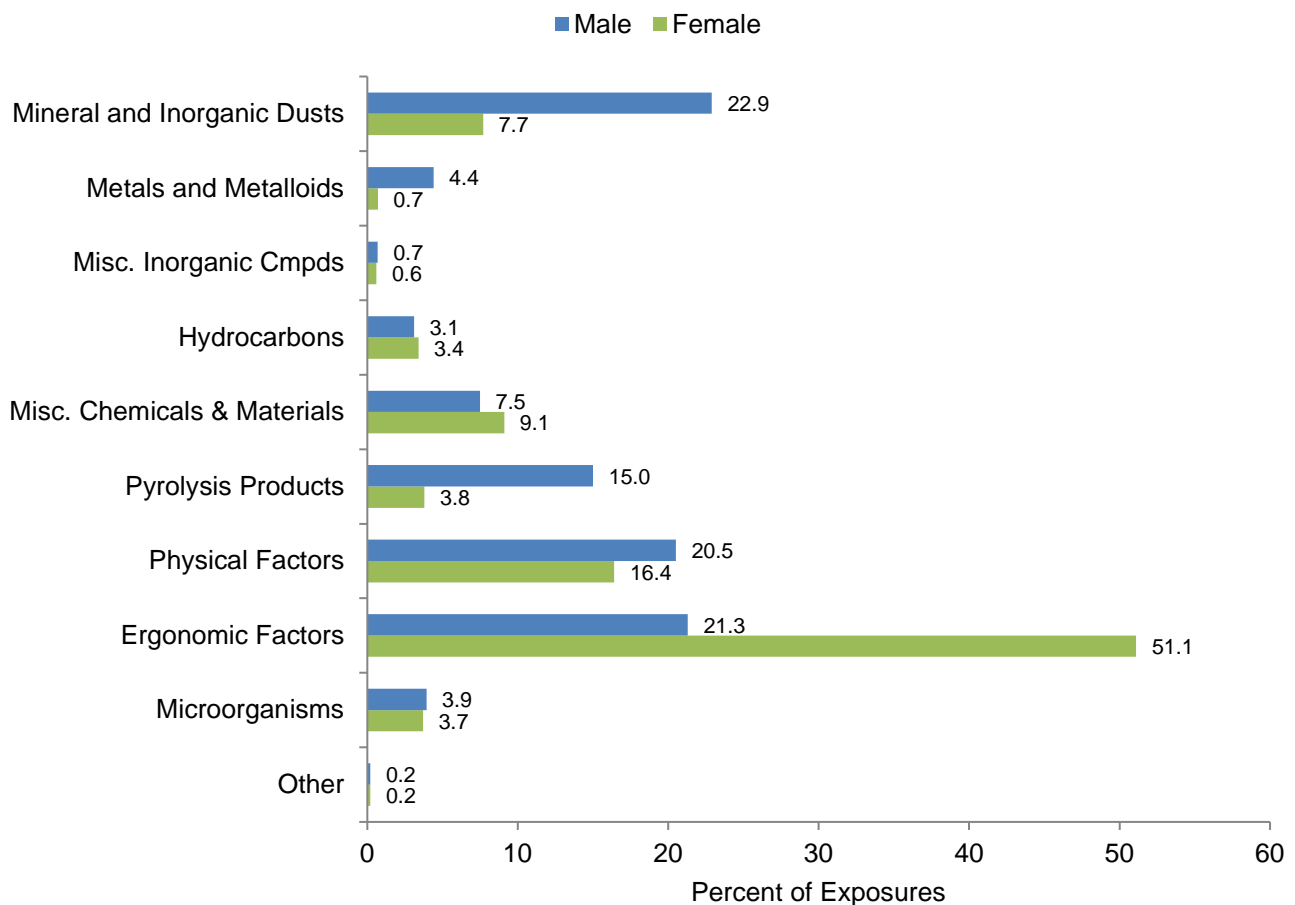
Figure 3.30. Number of Diagnoses for Patients Not Currently Sick, Seen for a Specific Purpose in NYS OHCN Patients, by Year and Work-relatedness, 2006-2015



Patient Exposures

Figure 4.1. Percentage of NYS OHCN exposures, by exposure category and sex. Overall there were 132,235 exposures corresponding with the diagnoses identified in the NYS OHCN database between 2006 and 2015. Approximately one-third of these (n=44,377) were ergonomic factors, including keyboard use and repetitive motion. The next largest groups of exposures included physical factors such as heat, cold, and radiation (n=24,460) and mineral/inorganic dusts, including asbestos, silica and non-specified dusts (n=19,342). Miscellaneous chemicals and materials accounted for 10,619 exposures and included indoor and outdoor pollutants and pesticides. Pyrolysis products accounted for 13,330 and microorganisms including molds and yeast accounted for 4,952 exposures. Females were more likely to have reported exposures to ergonomic factors, and males were more likely to have reported exposures to ergonomic factors, physical factors and mineral/inorganic dusts.

Figure 4.1. Percent of NYS OHCN Exposures, by Exposure Category and Sex, 2006-2015



Exposures to Mineral and Inorganic Dusts

Figure 4.2. Number of NYS OHCN exposures to mineral and inorganic dust, by year and patient type. There were 19,342 reported exposures to mineral and inorganic dusts, of which 5,503 (28%) were among group screening patients. Among the dust exposures, 6,413 were asbestos and 12,040 were non-specified dusts (data not shown).

The majority of exposures to mineral and inorganic dusts were associated with diseases of the respiratory system (n=8,156). Another 6,928 dust exposures were associated with V-codes. Patients recorded with V-codes in their medical records by the NYS OHCN were patients who were not currently experiencing symptoms. They encountered the NYS OHCN for some specific purpose such as to receive prophylactic vaccinations or to be screened for conditions for which they were at high risk (such as Lyme disease, asbestos screenings, and lead screenings).

Figure 4.2. Number of NYS OHCN Exposures to Mineral and Inorganic Dust, by Year and Patient Type, 2006-2015

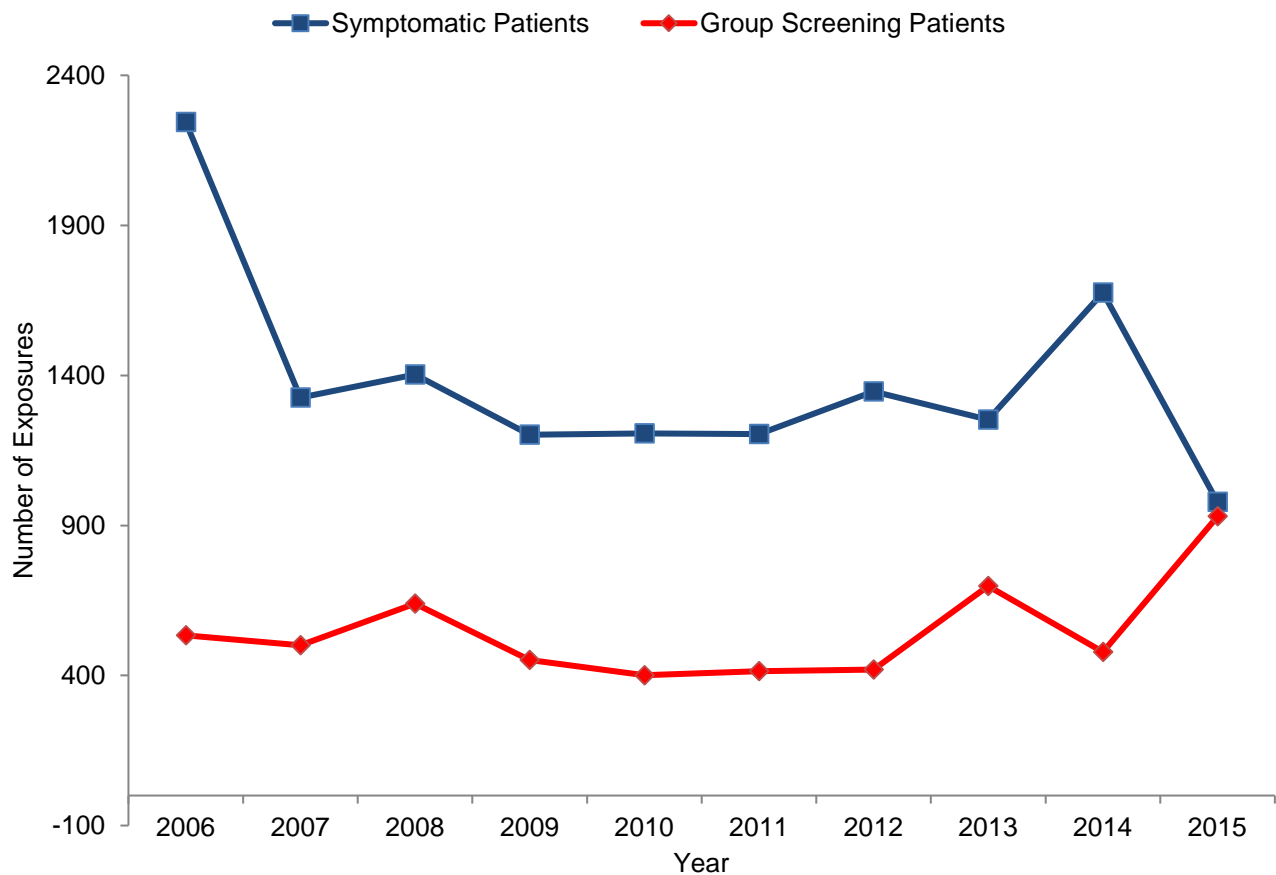
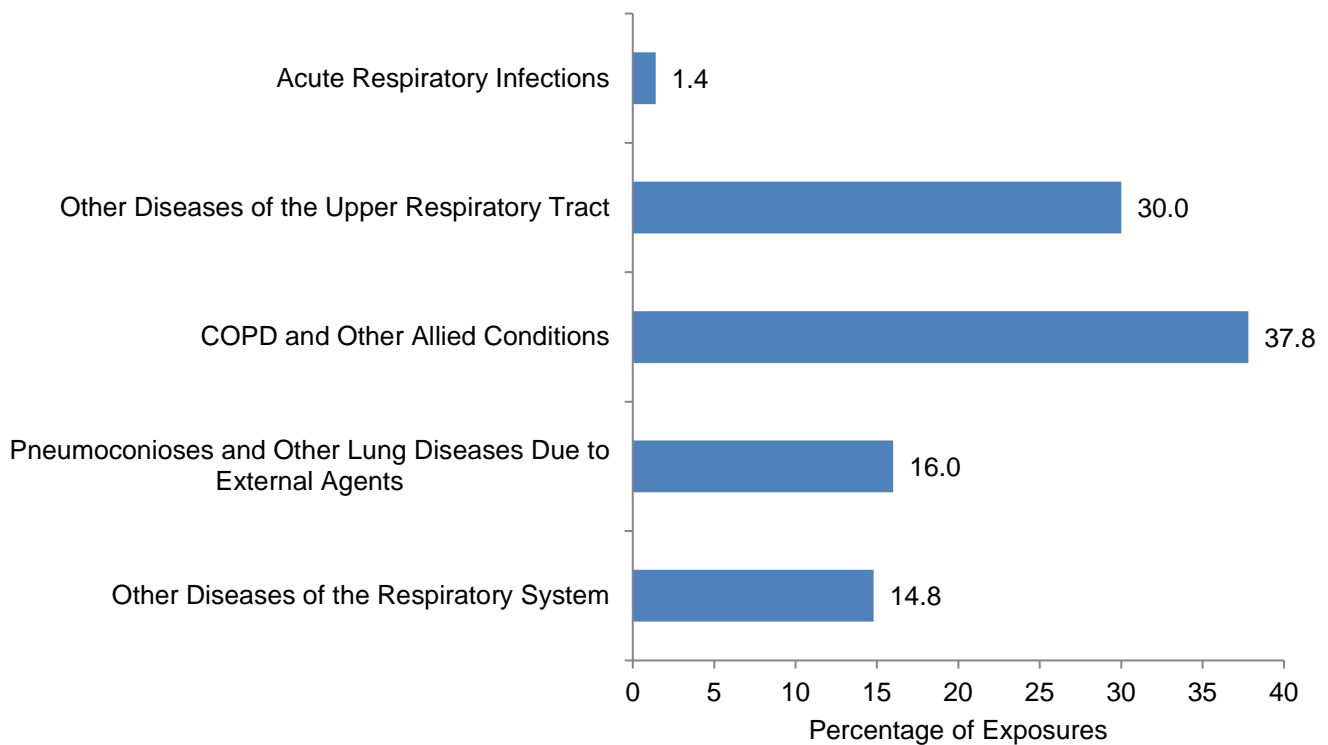


Figure 4.3. Percentage of NYS OHCN exposures to mineral and inorganic dusts, by type of respiratory disease diagnosis. Among reported exposures to mineral and inorganic dusts, there were 8,156 diagnoses of respiratory diseases, of which 1,052 (13%) were pleural thickening due to asbestos (ICD-9-CM Code 511). Among the 1,307 diagnoses of pneumoconiosis among dust exposures, 673 were asbestosis (ICD-9-CM Code 501) and 481 diagnoses were respiratory conditions due to chemical fumes and vapors (ICD-9-CM Code 506). There were an additional 3,086 diagnoses of “chronic obstructive pulmonary disease and allied conditions” among dust exposures, of which 2,297 were asthma (ICD-9-CM Code 493), 362 were chronic airway obstructions (ICD-9-CM Code 496) and 315 were chronic bronchitis (ICD-9-CM Code 491).

Another 2,449 (30%) were diagnosed with “other diseases of the upper respiratory tract”, including 879 patients with chronic pharyngitis and 715 with chronic sinusitis (ICD-9-CM Codes 472 and 473, respectively).

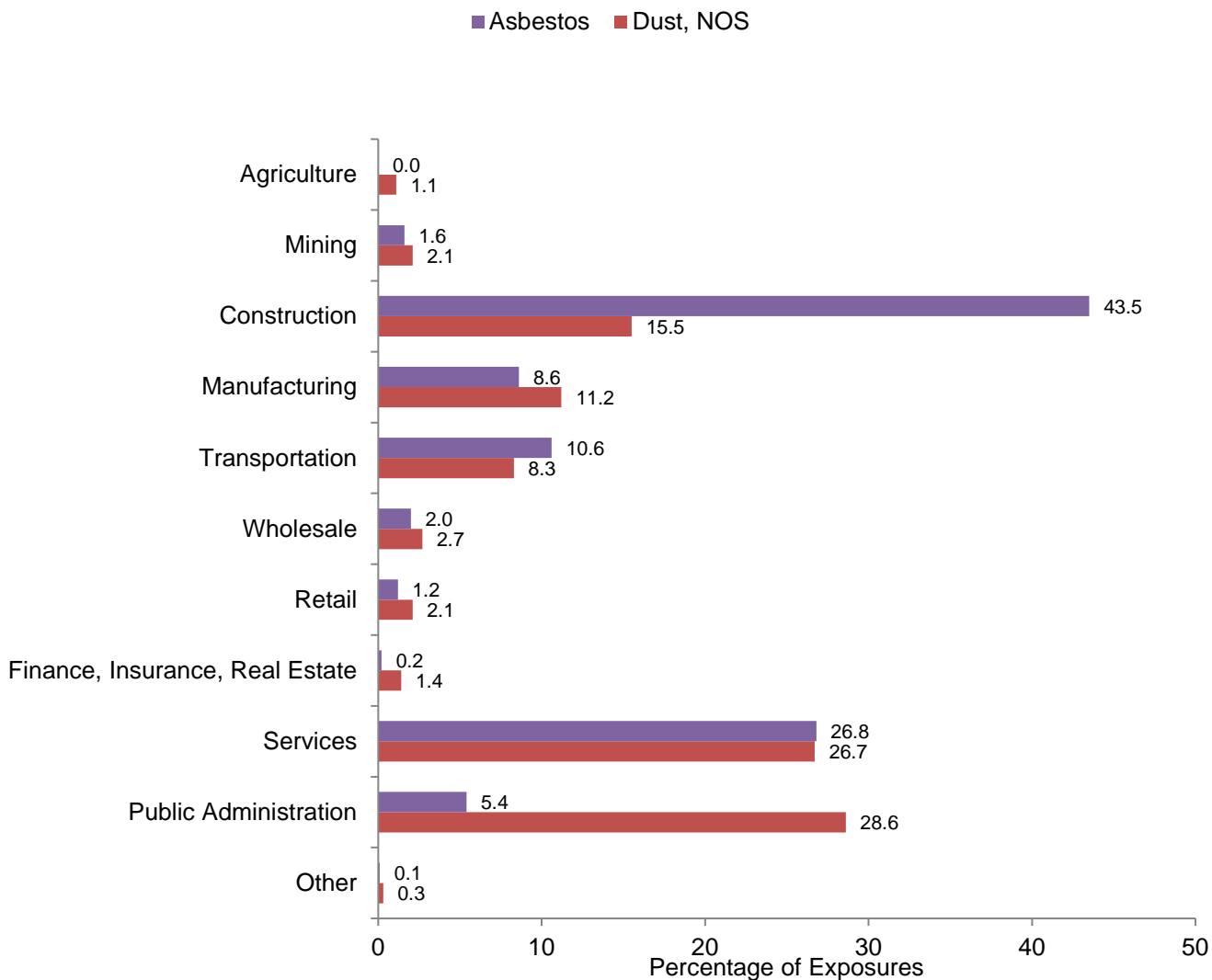
Figure 4.3. Percentage of NYS OHCN Exposures to Mineral and Inorganic Dusts, by Type of Respiratory Disease Diagnosis, 2006-2015



Non-specified Dusts or Asbestos

Figure 4.4. Percentage of NYS OHCN exposures to non-specified dusts or asbestos, by industry. Exposures to asbestos were reported primarily among those in construction industries (43%) followed closely by the services industries (27%). Exposures to non-specified dust were reported primarily in public administration (28%), services (27%) and construction (16%) industries.

Figure 4.4. Percentage of NYS OHCN Exposures to Non-Specified Dusts or Asbestos, by Industry, 2006-2015

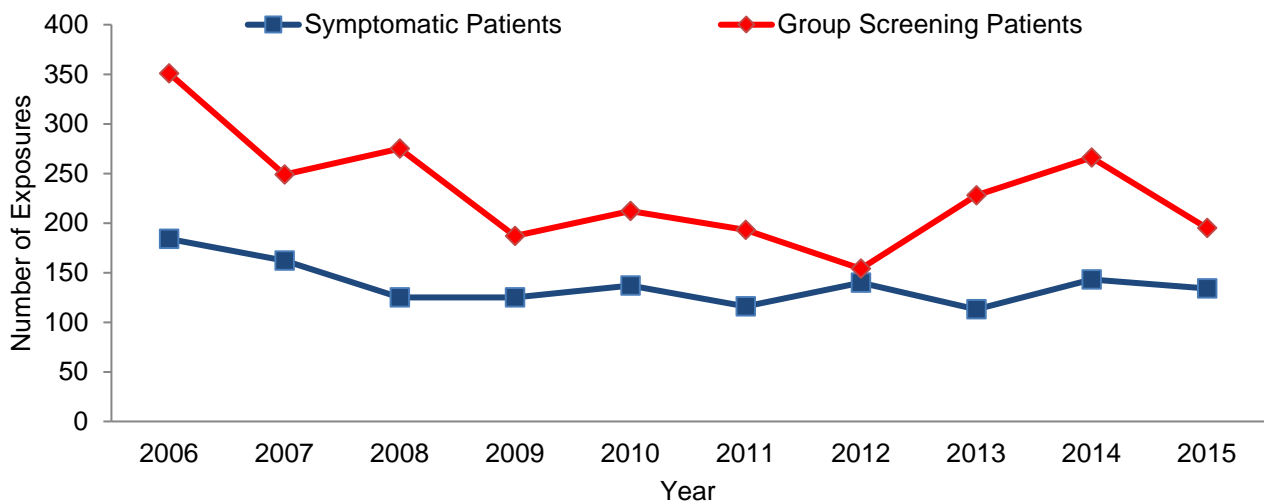


Exposures to Metals and Metalloids

Figure 4.5. Number of NYS OHCN exposures to metals and metalloids, by year. There were 3,689 reported exposures to metals and metalloids, of which 2,310 (63%) were among group screening patients. Included among all metal exposures were 2,677 exposures to lead, 44 to inorganic mercury, and 194 to unspecified welding fumes (data not shown). Among those with reported exposures to lead, 94% were work related while majority (55%) of the mercury exposures were not work related.

Nearly half of reported exposures were associated with V-codes recorded in the medical records (n=1,542). Among these, 80% were group screening patients. Other diagnoses as a result of exposure to metals were injuries and poisonings (35%), diseases of the respiratory system (11%) and symptoms and signs (6%).

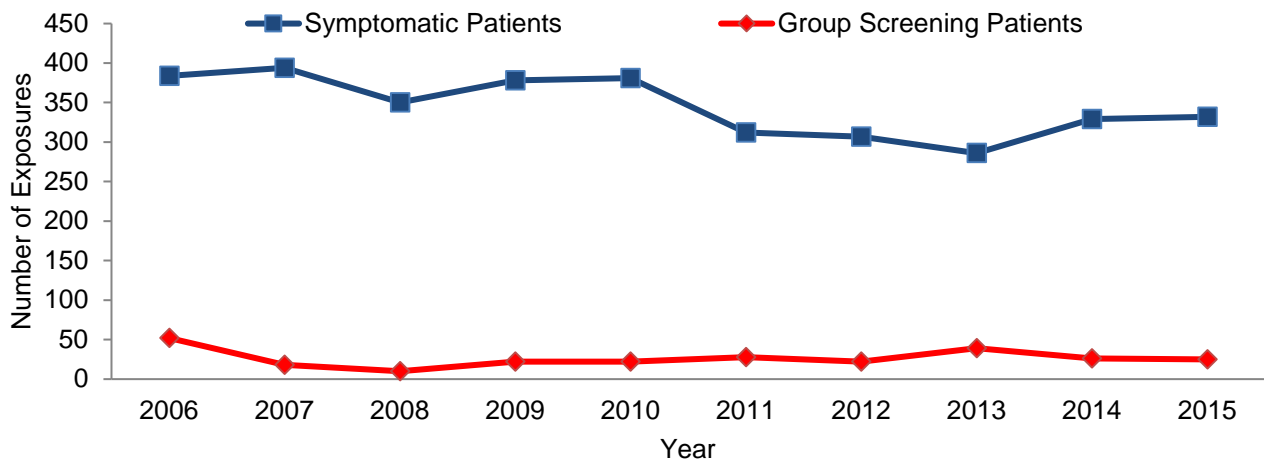
Figure 4.5. Number of NYS OHCN Exposures to Metals and Metalloids, by Year, 2006-2015



Exposures to Non-Specified Hydrocarbons

Figure 4.7. Number of NYS OHCN exposures to non-specified hydrocarbons, by year. There were 3,717 reported exposures to non-specified hydrocarbons, of which 264 (7%) were among group screening patients. The top reported exposures were solvents (n=2,428) and paint (n=502) (data not shown). The diagnoses associated with these exposures were varied, with 1,806 (49%) diseases of the respiratory system, 443 (12%) signs and symptoms, and 415 (11%) diseases of the nervous system (data not shown).

Figure 4.7. Number of NYS OHCN Exposures to Non-Specified Hydrocarbons, by Year, 2006-2015



Exposures to Ergonomic Factors

Figure 4.13. Number of NYS OHCN exposures to ergonomic factors, by year. There were 44,377 reported exposures to ergonomic factors, of which 1,128 (3%) were among group screening patients.

Figure 4.13. Number of NYS OHCN Exposures to Ergonomic Factors by Year, 2006-2015

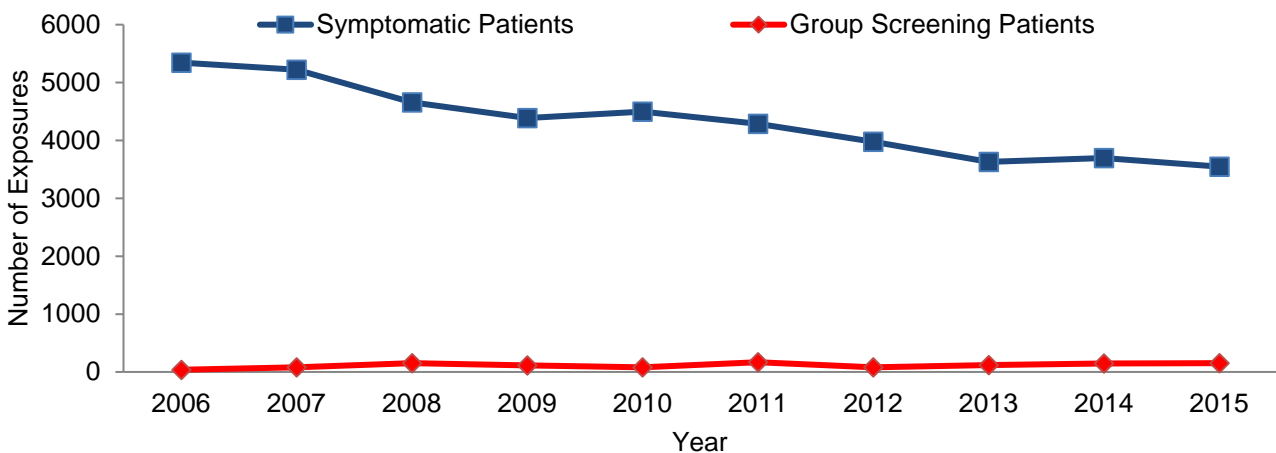
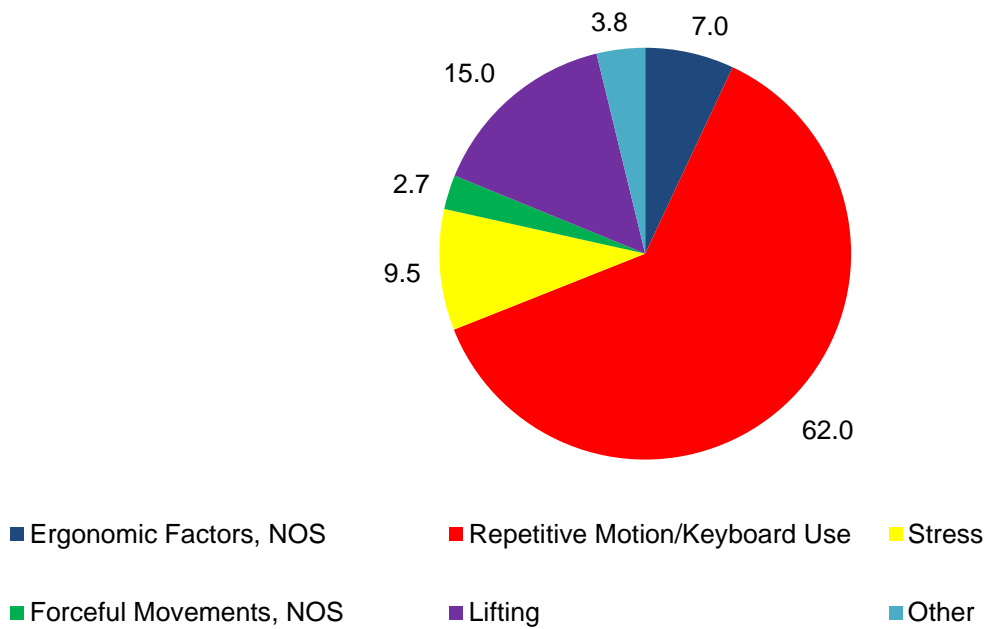


Figure 4.14. Percentage of NYS OHCN exposures to ergonomic factors, by type of factor. Of these reported exposures, 27,494 (61%) were repetitive motion including keyboard use, 4,196 (9%) were stress, and 6,664 (15%) were lifting. Another 3,036 (7%) were to non-specified ergonomic factors.

Exposure to stress was primarily associated with mental disorders (44%). Exposures to repetitive motion were primarily associated with diseases of the musculoskeletal system including carpal tunnel syndrome (n=3,607) (ICD-9-CM Code= 354.0), peripheral enthesopathy (n=5,240), other disorders of synovium tendon and bursa (n=2,998) (ICD-9-CM Code= 727.00 -727.9), other disorders of cervical region (n=2,319) (ICD-9-CM Codes 723 -723.9), and cubital tunnel syndrome (n=2,046) (ICD-9-CM Code 354.2) (data not shown).

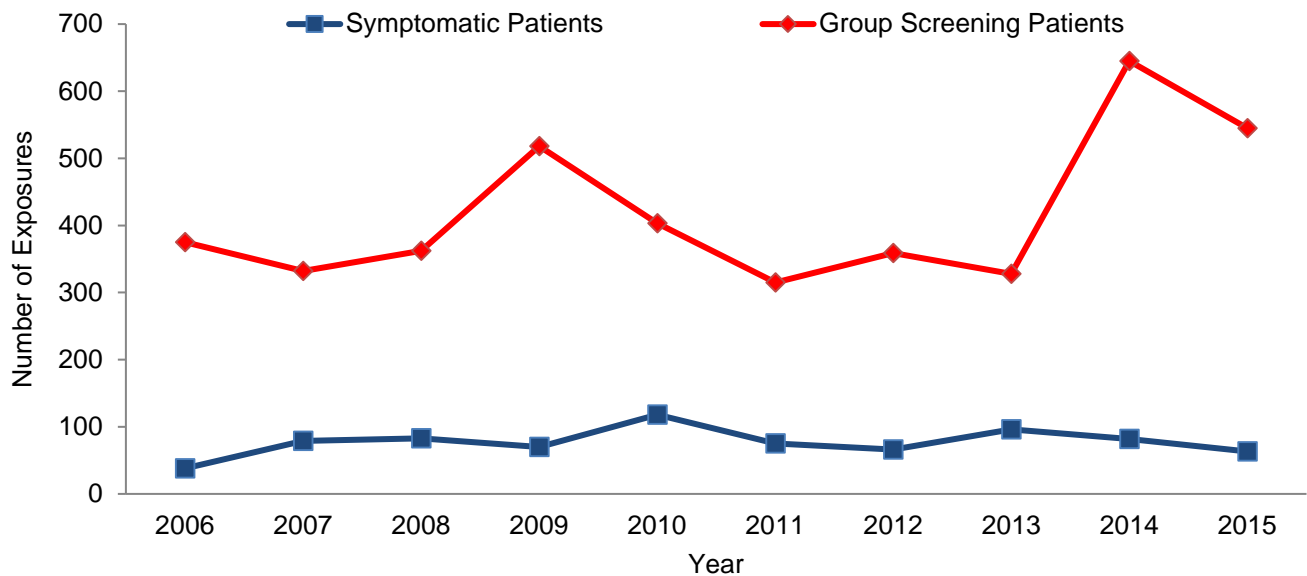
Figure 4.14. Percentage of NYS OHCN Exposures to Ergonomic Factors, by Type of Factor, 2006-2015



Exposures to Microorganisms

Figure 4.15. Number of NYS OHCN exposures to microorganisms, by year. There were 4,952 reported exposures to microorganisms, of which 4,182 (84%) were among group screening patients. The majority of these patients (n=2,543) were exposed to non-specified infectious agents, and 1,709 (35%) were exposed to tuberculosis (data not shown). Most of these patients exposed to microorganisms were seen for prophylactic vaccinations against influenza (n=1,407) (ICD-9-CM Code V04.81), screening examinations for pulmonary tuberculosis (n=1,663) (ICD-9-CM Code V74.1) or for other routine specified and unspecified examinations (n=728) (ICD-9-CM Codes V72.85 and V72.90) (data not shown).

Figure 4.15. Number of NYS OHCN Exposures to Microorganisms, by Year, 2006-2015



Industries and Occupations of Patients

Services

(Standard Industrial Classification (SIC) Codes 70-89)

Figure 5.24. Occupations of NYS OHCN patients working in the services industry, by patient type. The leading occupation for patients working in the services industry was service occupations. Within the services occupations, 26% were seen as part of group screenings. The principle services occupations included 1,400 working in cleaning and building services occupations, excluding households; 409 in food preparation and service occupations; 180 in protective services and 376 in personal service occupations, including 54 in childcare and 29 in private households. There were 3,125 service industry patients working in managerial and professional specialty occupations, of which 26% were group screenings. These included 1,301 teachers, 797 in professional specialties, and 926 in health treating occupations. Another 2,679 patients were employed in technical, sales and administrative support occupations, of which 26% were group screenings. These patients were primarily licensed practical and licensed vocational nurses (n=332), secretaries and administrative assistants (n=310), and miscellaneous health technologists and technicians (n=200).

Figure 5.24. Occupations of NYS OHCN Patients, Working in the Services Industry, by Patient Type, 2006-2015

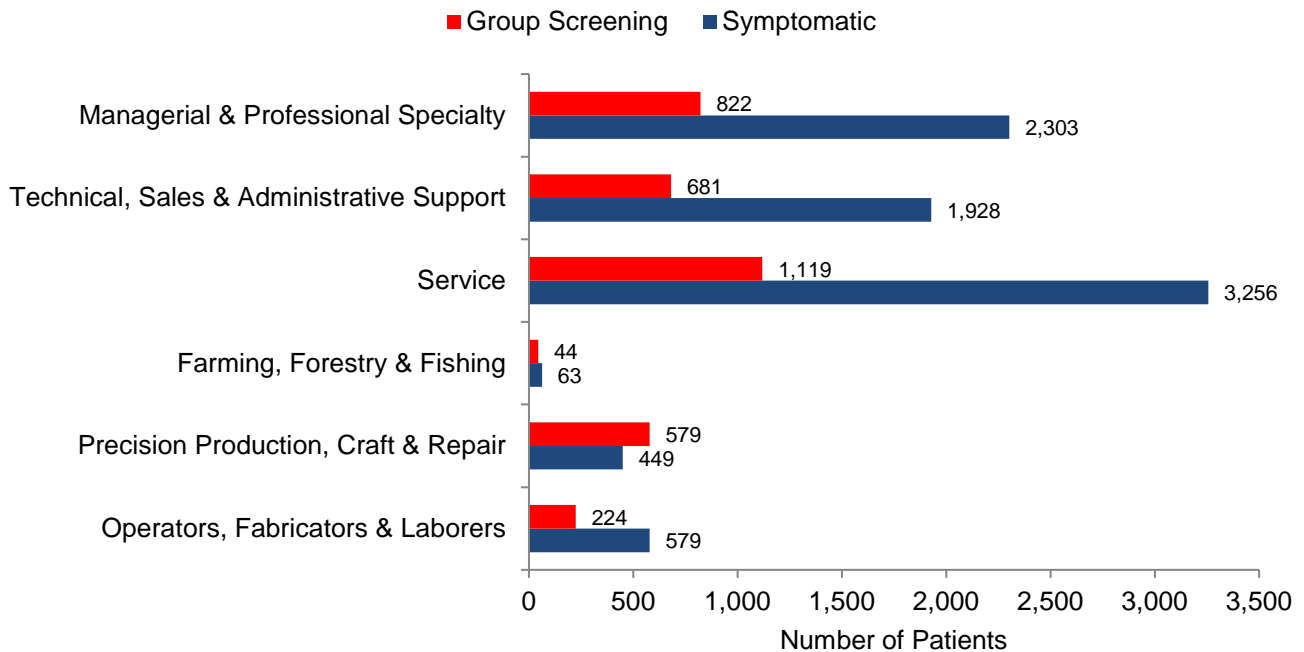


Figure 5.25. Diagnoses among NYS OHCN patients working in the services industry, by patient type. Among the patients employed in the services industry, there were 12,105 diagnoses of which 29% were group screenings (n=3,471) and 31% were V-codes (n=3,768). Excluding V-codes, the leading diagnosis for patients working in the services industry were diseases of the musculoskeletal system (n=3,034) including 158 diagnoses of enthesopathy of the elbow region and 173 diagnoses of myalgia (ICD-9-CM Codes 726.3 and 729.1, respectively). There were 1,646 diagnoses of injuries and poisonings, of which 1,272 were sprains or strains (ICD-9-CM Codes 840-848); 126 were contusions on upper and lower limbs and 31 open wounds on fingers (ICD-9-CM Codes 923-924, and 883, respectively). There were 470 diagnoses of diseases of the respiratory system, including 478 diagnoses of asthma, 229 diagnoses of chronic pharyngitis and sinusitis, and 22 diagnoses of asbestosis (ICD-9-CM Codes 493, 472-473, 501, respectively).

Figure 5.25. Diagnoses Among NYS OHCN Patients Working in the Services Industry, by Patient Type, 2006-2015

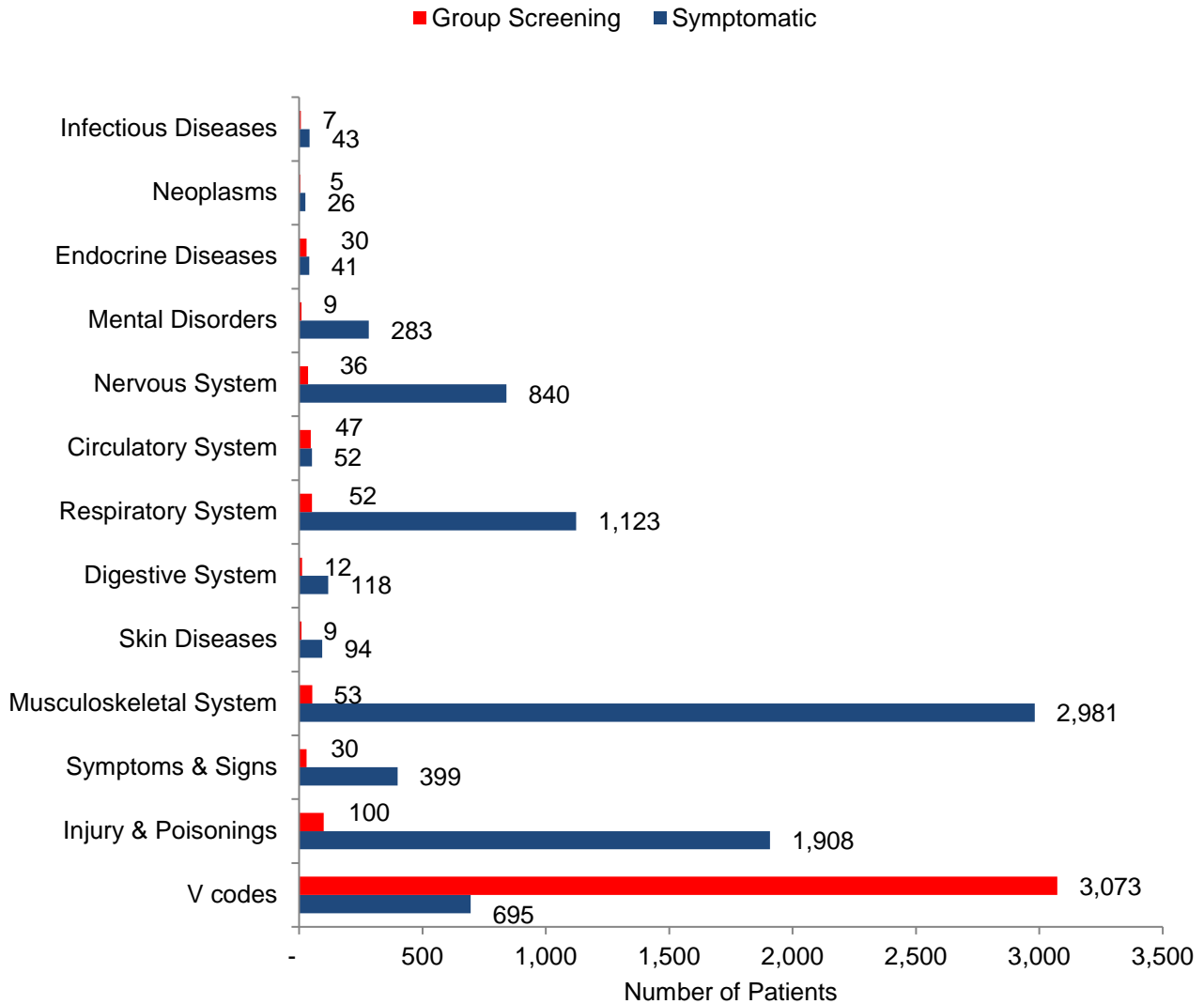


Figure 5.26. Exposures among NYS OHCN patients working in the services industry, by patient type. Among patients working in the services industry, there were 11,064 exposures identified. Of these, 4,557 were to ergonomic factors, of which 98% were symptomatic patients. These exposures were primarily repetitive motion (n=2,423), stress (n=730) and lifting (n=850). There were 1,693 exposures to mineral and inorganic dusts, of which 48% were group screenings.

Figure 5.26. Exposures among NYS OHCN Patients Working in the Services Industry, by Patient Type, 2006-2015

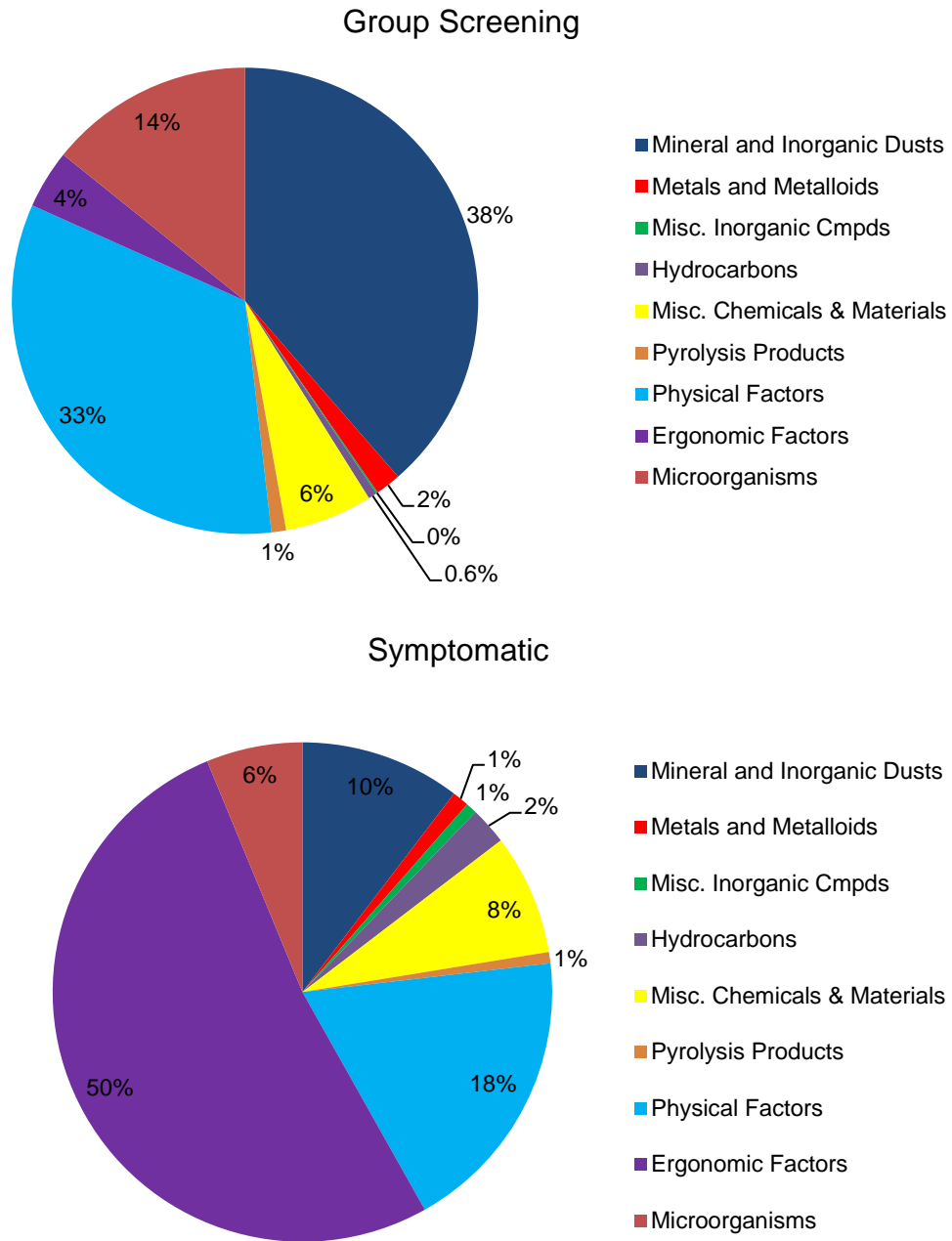


Figure 5.3. Percent of industry of employment of NYS OHCN patients, by sex. Among the Clinic patients, females were employed primarily in the services (50%), public administration (19%) and manufacturing (12%) industries. Males were primarily employed in public administration (41%), construction (14%) and services (14%) industries. Almost all clinic patients employed in mining industries and construction industries were male (99% and 96%, respectively). A higher percentage of females than males were employed in service occupations (11% vs. 6%) and in technical, sales and administrative support occupations (49% vs. 46%) (data not shown).

