New York State Occupational Health Clinic Network Report – Key Updates 2004 - 2012

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 2004 through 2012. The initial report included detailed descriptions of patient demographics, types of diagnoses and likely etiologic agents responsible for causing or exacerbating medical conditions, as well as the types of industries and occupations of the patients seen with occupational exposures.

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 2004 and 2012, 28,090 new patients were seen in 110,376 visits.
- Patients were seen from all counties in New York State, with most people residing in counties with large metropolitan areas.
- There has been a shift in the occupations of the patients from the original report with a much higher percentage employed in public administration (31% vs. 22% previously), the services industry (27% vs. 23% previously), and fewer in construction trades (13% vs. 22%, previously). These shifts do not reflect changes seen in the New York State workforce.
- Patients were primarily seen for diseases of the musculoskeletal system, respiratory system, and injuries and poisonings.
- An increasing percentage of the patients were seen for ergonomic exposures (31% vs. 25% previously), including keyboard use and repetitive motion.
- A quarter of the patients were evaluated for exposure to mineral and inorganic dusts, including asbestos, silica and non-specified dusts.

Patient Characteristics

Patient Population

Figure 2.1. Number of new NYS OHCN patients seen, by year. From 2004 through 2012, 28,090 new patients were seen in the NYS Occupational Health Clinic Network (OHCN) in 110,376 visits. These patients were roughly equally divided between group screening patients* and symptomatic patients. The number of new patients decreased almost every year from 4,421 in 2004, to 2,436 in 2012. Overall, the total number of patients seen each year by the NYS OHCN has also decreased over the years, from 7,870 patients in 2004 to 2,479 patients in 2012 (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.

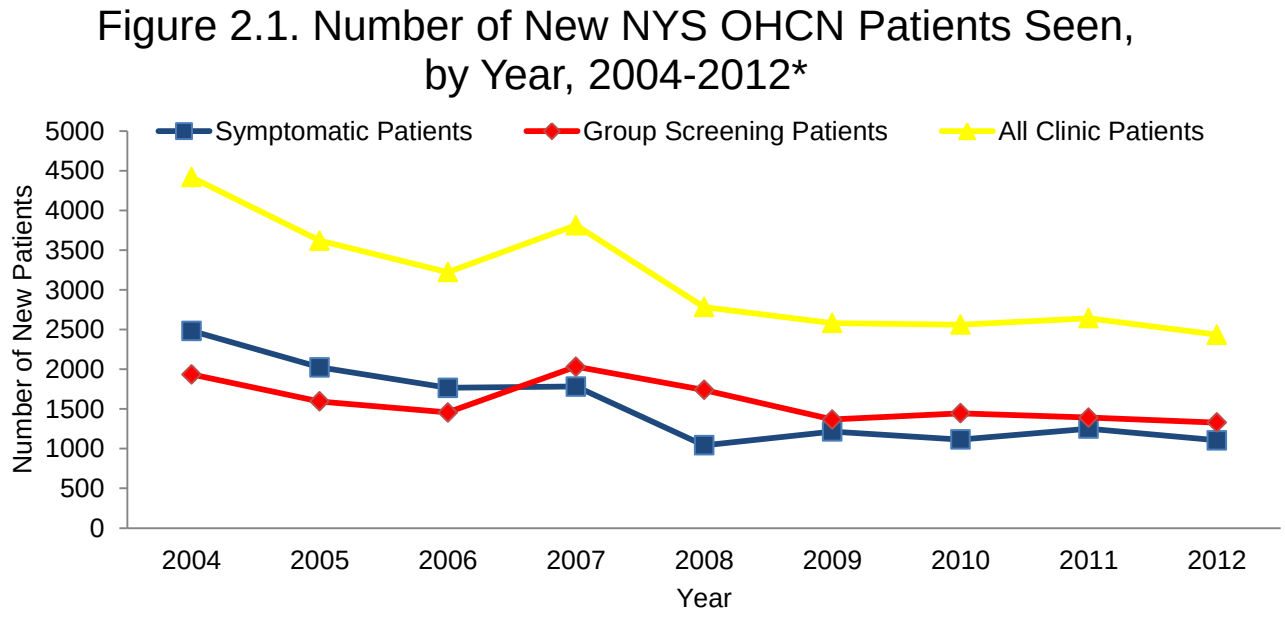
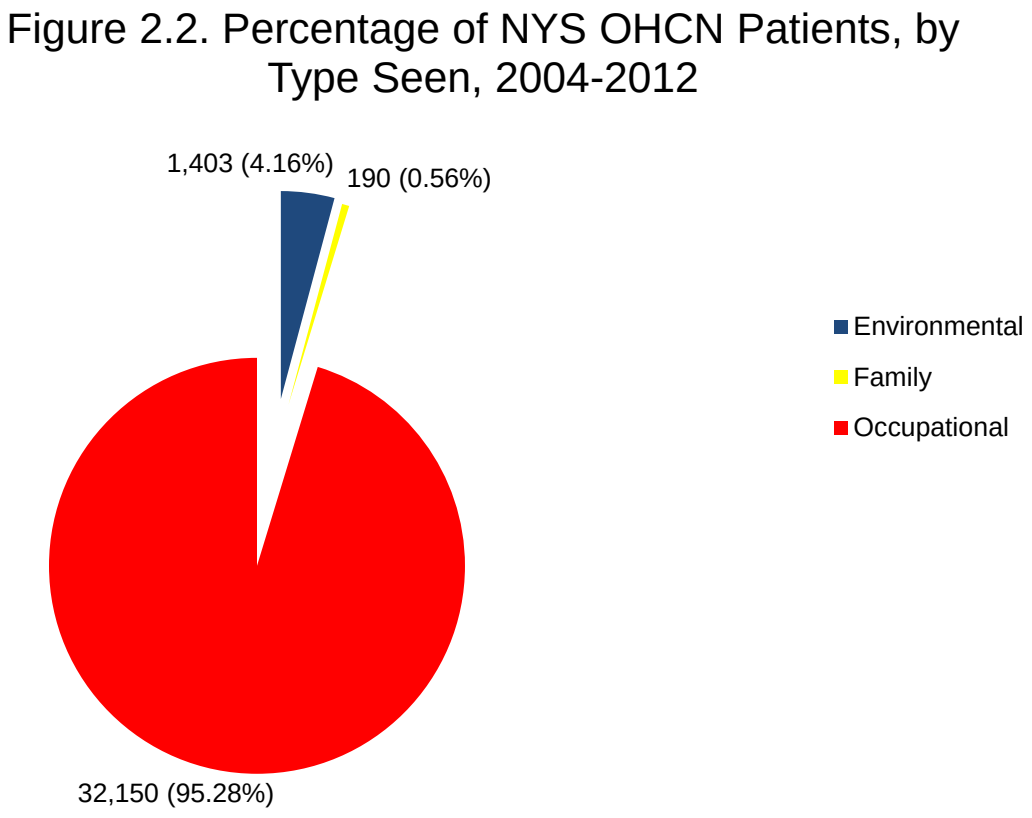


Figure 2.2. Percentage of NYS OHCN patients, by type seen. Overall, 95% (32,150) of patients were seen for occupational exposures. Occupational patients had exposures from either their present or past occupations. The small percentage of environmental patients were seen for non-occupational exposures 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 (66%) and family (73%) patients, compared to the occupational patients (29%).



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 Monroe counties. Otsego and Suffolk Counties had the highest percentages of patients. There were substantially fewer patients from areas of New York with lower populations such as the Adirondack Park.

Figure 2.3. Residence of NYS OHCN Patients, by County

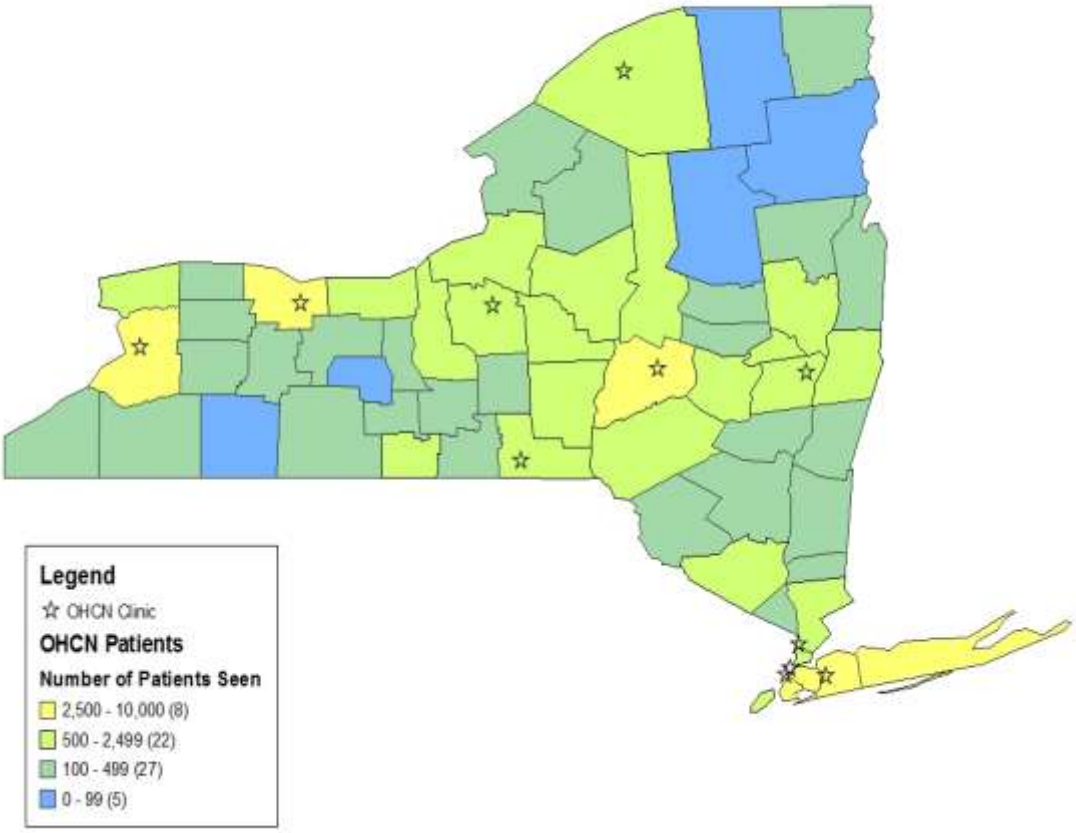
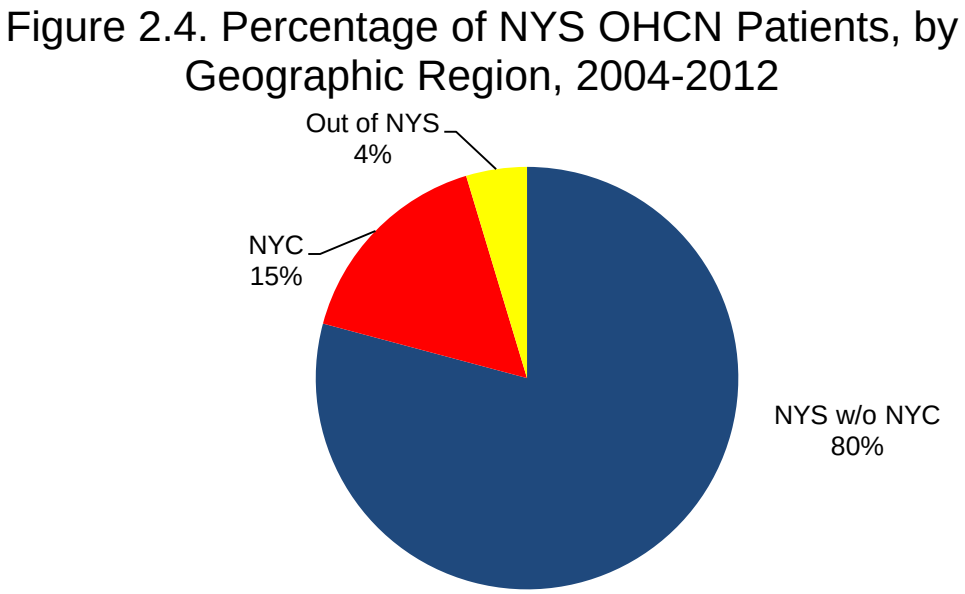
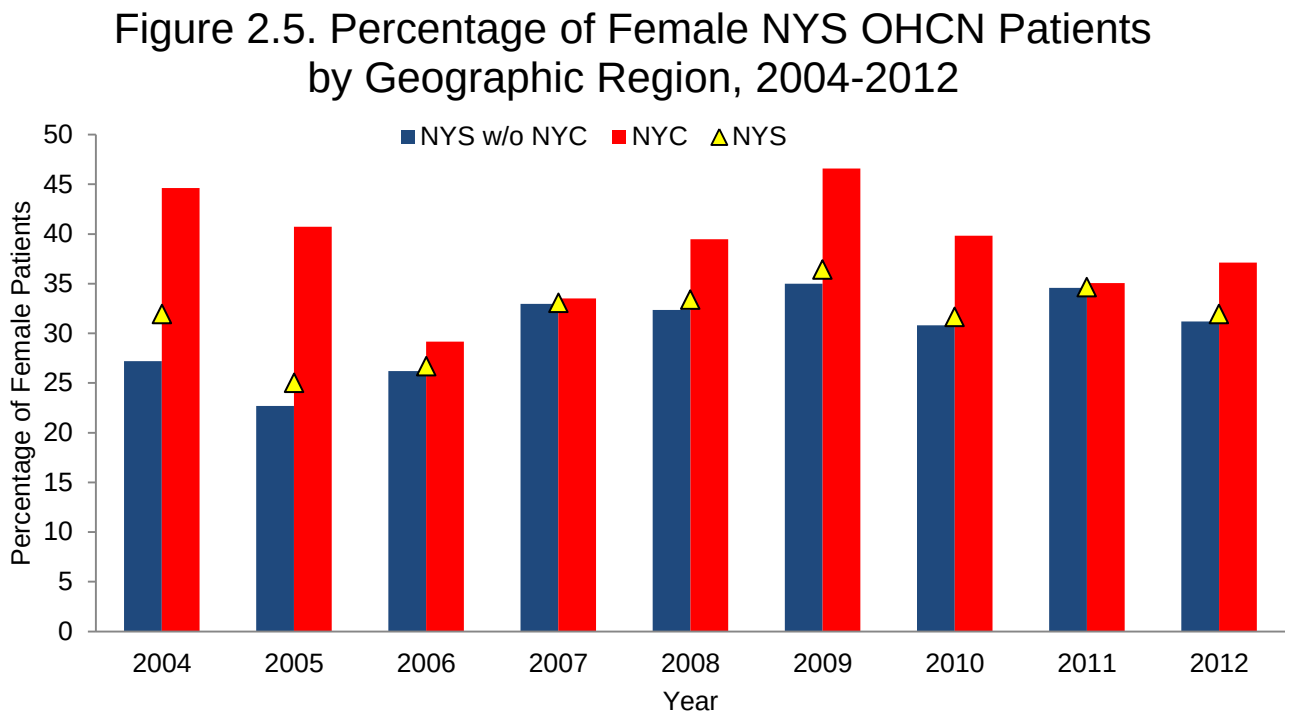


Figure 2.4. Percentage of NYS OHCN patients, by geographic region. There were 32,137 patients who resided in New York State (NYS); 26,951 (80%) outside of New York City (NYC) and 5,186 (15%) in NYC. There were 1,593 (4%) patients who were not NYS residents. Place of residence was unknown for 13 patients.



Sex of Patient Population-Females

Figure 2.5. Percentage of female NYS OHCN patients, by geographic region. Females accounted for 31% (n=10,477) of the patient population. Women made up a higher percentage of the patients seen in NYC (40%) as opposed to NYS outside of NYC (28%). Overall, the percentage of patients who were female has remained relatively stable. Ninety percent of the females were seen for occupational conditions, while 98% of the males were seen for occupational conditions (data not shown).

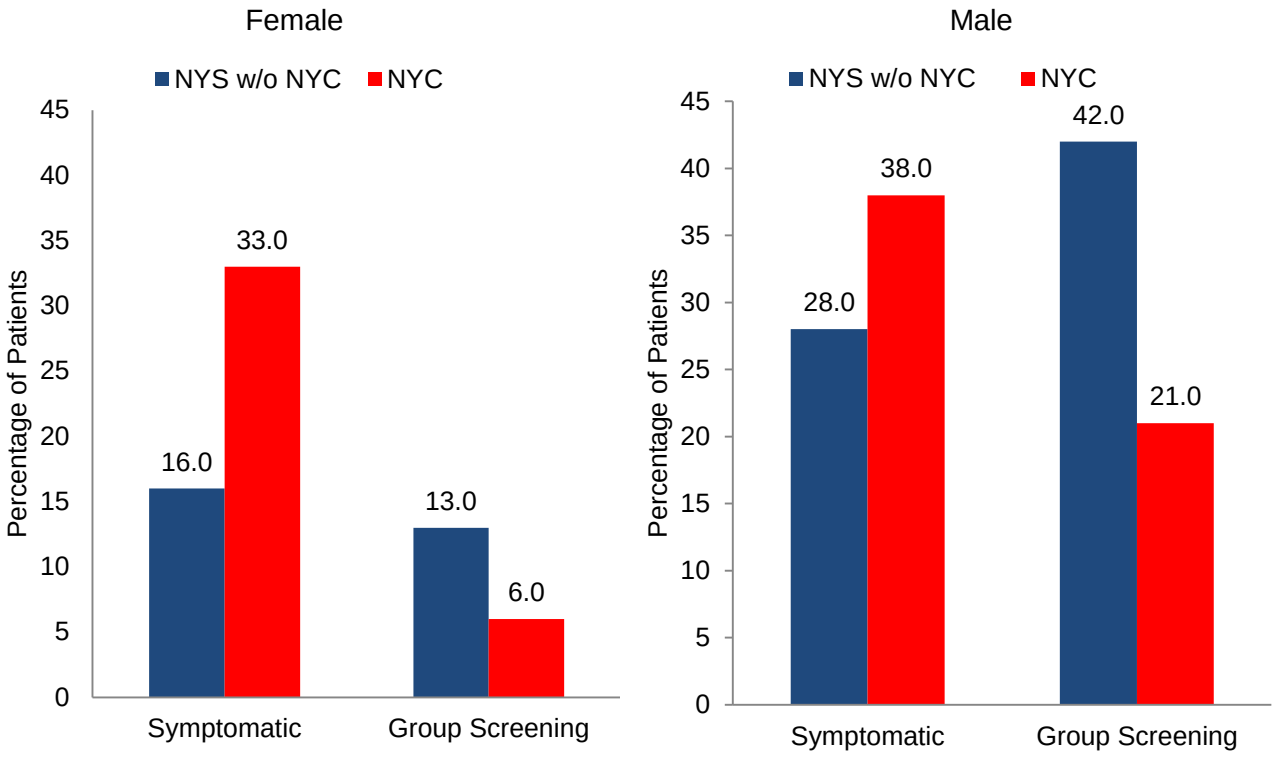


Group Screening Patients

Overall, 14,294 (50%) patients were seen in the NYS OHCN as part of a group screening. Among those seen, 7,032 (44%) were part of a respirator certification program, 1,260 (11%) were followed-up for asbestos exposure, and 2,999 (16%) 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 and termination examinations.

Figure 2.6. Percentage of NYS OHCN patients, by sex, geographic region and patient type. Among all of the patients seen in NYS outside of NYC (26,951), 4,336 (16%) were female patients seen as part of a sick visit (symptomatic) and 3,617 (13%) were females seen as part of group screenings; 7,628 (28%) were symptomatic male patients, and 11,370 (42%) were males seen as part of group screenings. A greater percentage of women were seen as symptomatic patients in NYC (33%) as opposed to being part of group screenings (6%). A higher percentage of males in NYC were also seen as symptomatic patients (38%) compared to the percentage seen as part of group screenings (21%).

Figure 2.6. Percentage of NYS OHCN Patients, by Sex, Geographic Region and Patient Type, 2004-2012



Age of Patient Population

Figure 2.7. Percentage of NYS OHCN patients, by age. The mean age of the patients during their first visits to the NYS OHCN was 44 years (data not shown), with over 70% of the patients between 31 and 60 years of age. Over 1,461 patients were under 20 years of age when first seen and 3,610 patients were over 60 years of age during their first visits to the Clinic. This is consistent with the NYS workforce.

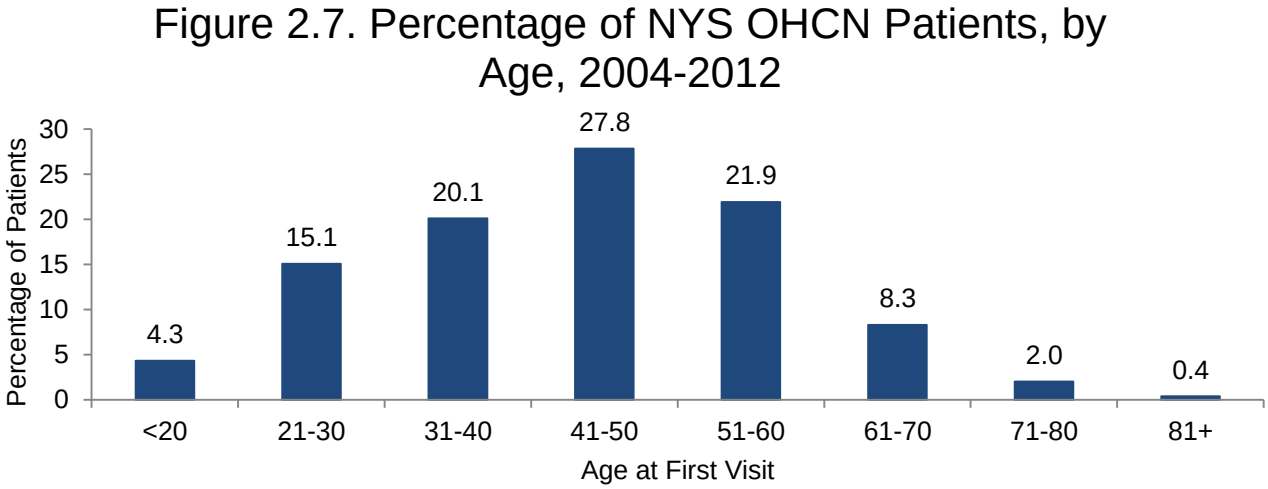
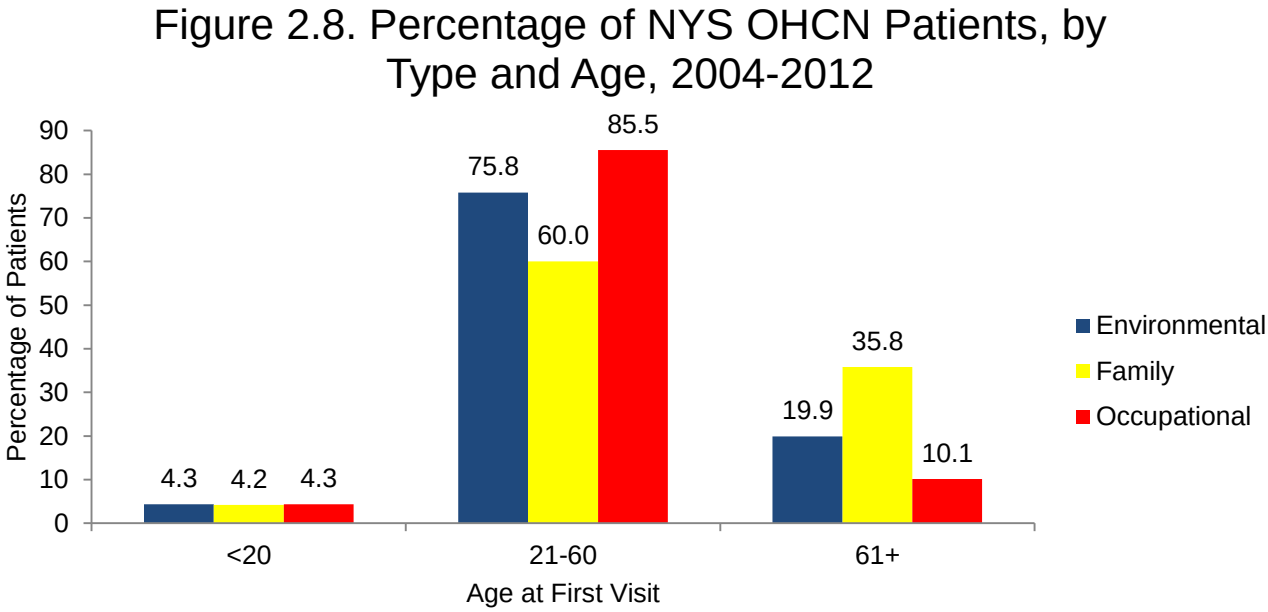


Figure 2.8. Percentage of NYS OHCN patients, by type and age. The majority of occupational patients were between 21 and 60 years of age (86%). A substantially higher percentage of the family patients were 61 years and older (36% vs. 20% environmental and 10% occupational).



Ethnicity of Patient Population

Figure 2.9. Percentage of NYS OHCN patients, by ethnicity and geographic region. Of the patients seen statewide, 26,709 (79%) were White, 2,965 (9%) were African-American, 2,523 (7%) were Hispanic, and 594 (2%) were Asian. 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 43% of the Clinic patients were White. The ethnicity 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 Ethnicity and Geographic Region, 2004-2012

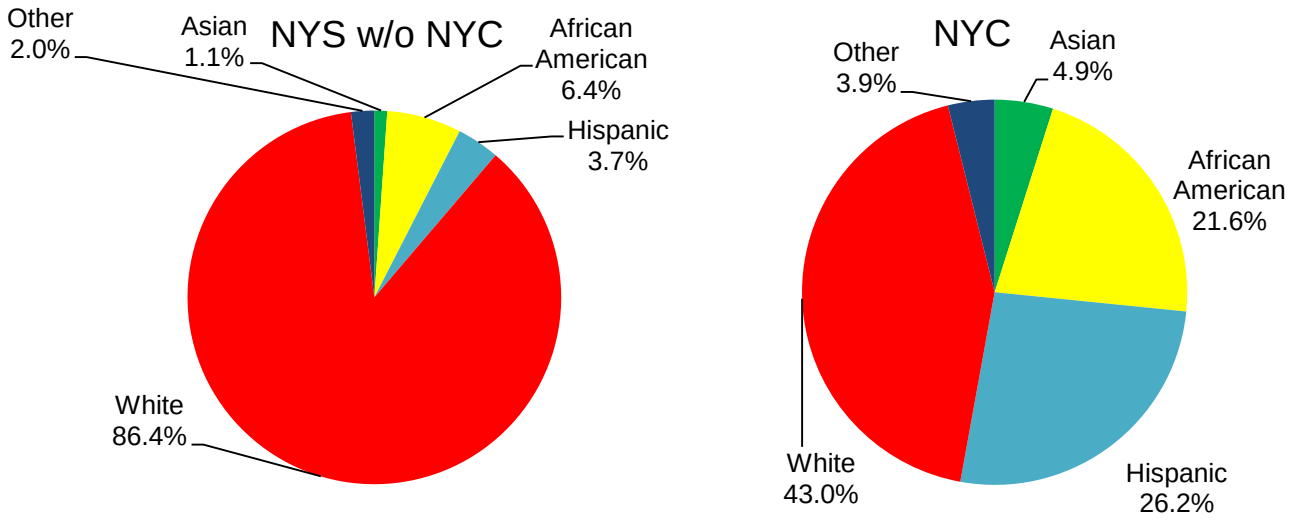
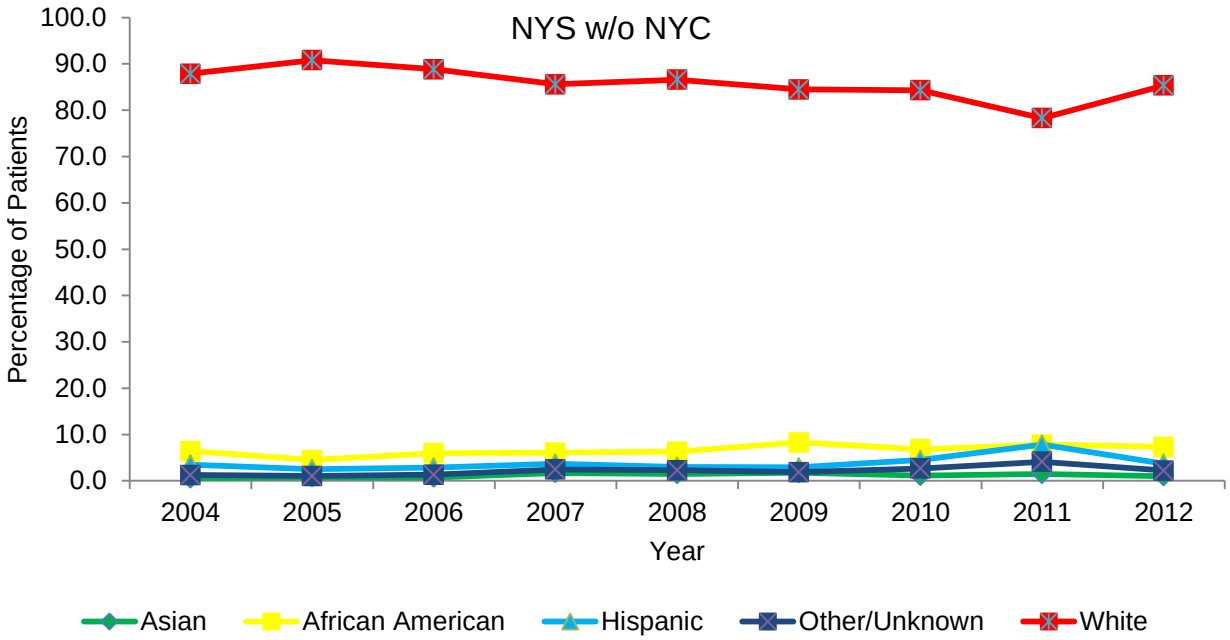
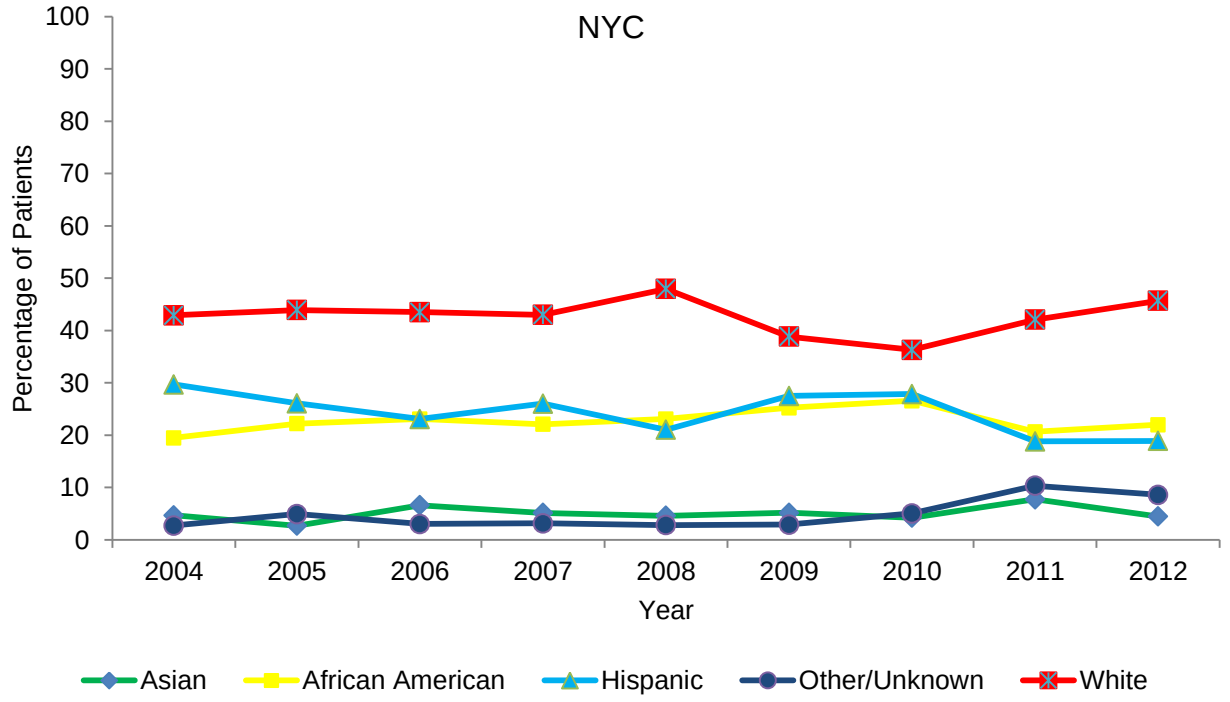


Figure 2.10. Percentage of NYS OHCN patients, by ethnicity, geographic region and year. From 2004 through 2012, the percentages of patients by ethnicity have remained relatively constant, although from 2008 to 2009 the percentage of White patients from NYC decreased by about 12% and the percentages of the other ethnicities, except Asians, increased slightly.

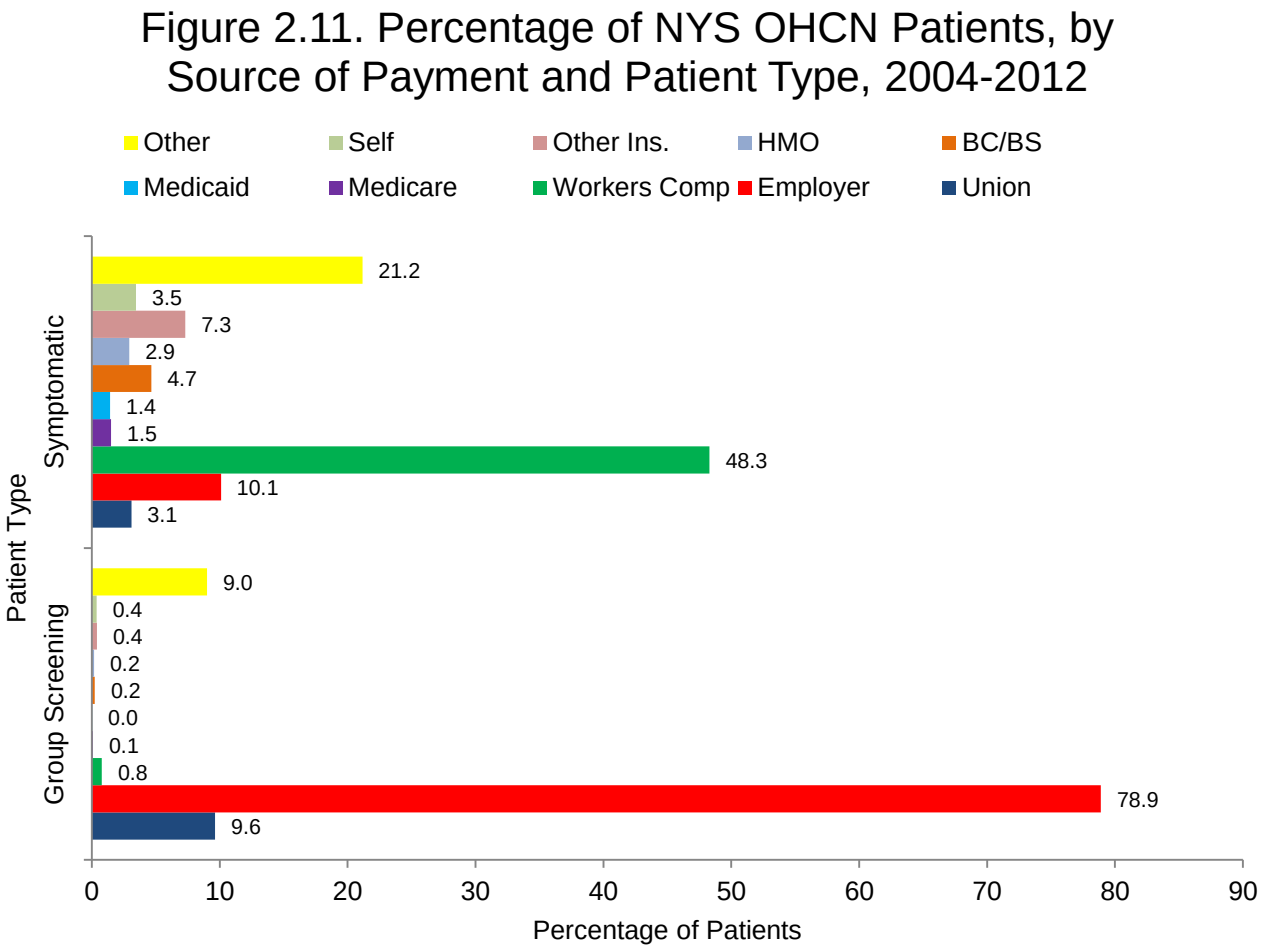
Figure 2.10. Percentage of NYS OHCN Patients, by Ethnicity, Geographic Region and Year, 2004-2012





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 (79% vs. 10% of symptomatic patients). Overall, employers were billed for 45% of the Clinic patients' services. Among those patients seen for symptoms, the Clinics expected Worker's Compensation to cover payment of services for 48% of the patients, while this payment source was expected for less than 1% of the group screening patients.



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 patients were referred to the Clinics by either their employer or their union (59%), regardless of patient type. Approximately 90% of the group screening patients and 27% of the symptomatic patients were referred by one of these two sources.

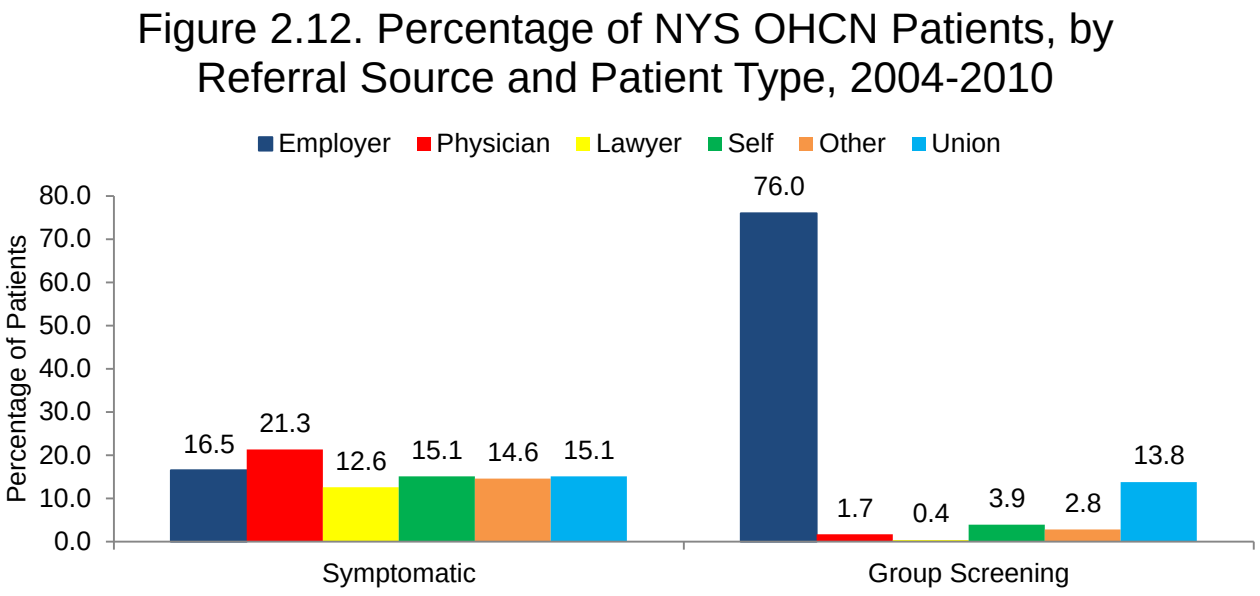
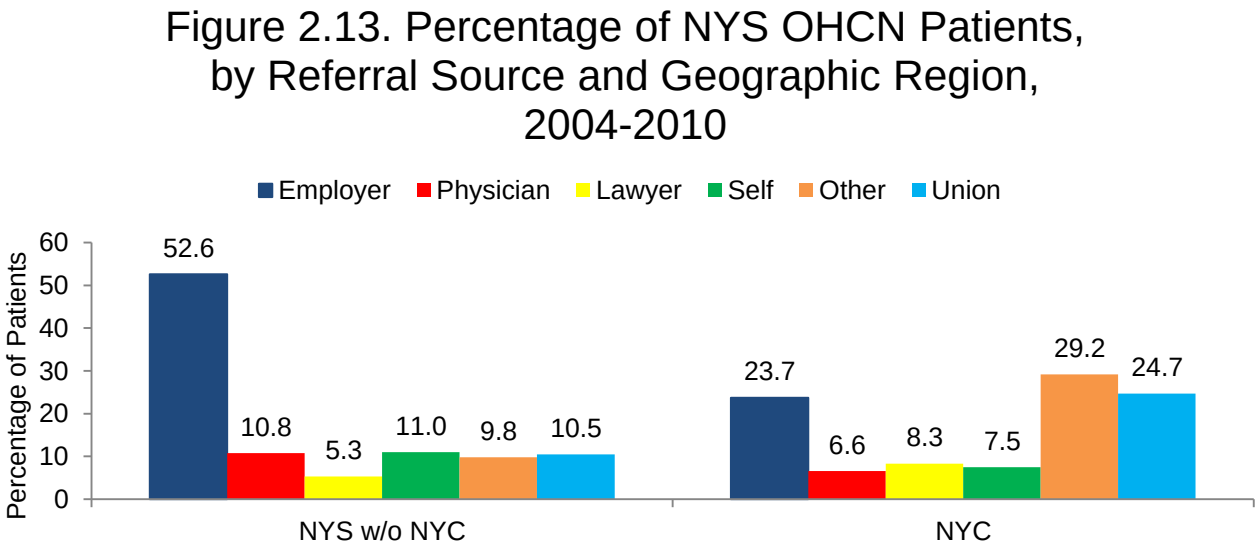


Figure 2.13. Percentage of NYS OHCN patients, by referral source and geographic region. Clinics located in NYC received over 24% of their referrals from unions and 24% from employers; while in NYS, outside of NYC, about 11% of referrals were from unions and 53% from employers.



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 10,444 (43%) were employed in technical, sales and administrative support occupations; followed by 5,779 (24%) in precision production occupations, and 3,598 (15%) as operators, fabricators and laborers (data not shown). Among the symptomatic patients, 3,745 (34%) worked in technical, sales and administrative support occupations, 2,768 (25%) in precision production, 2,002 (18%) as operators and laborers, and 1,180 (11%) as managers and professionals. Among the group screening patients, 6,699 (50%) worked in technical, sales and administrative support occupations, 3,011 (23%) worked in precision production, and 1,656 (12%) as operators and laborers. This does not reflect the distribution of occupations in NYS.

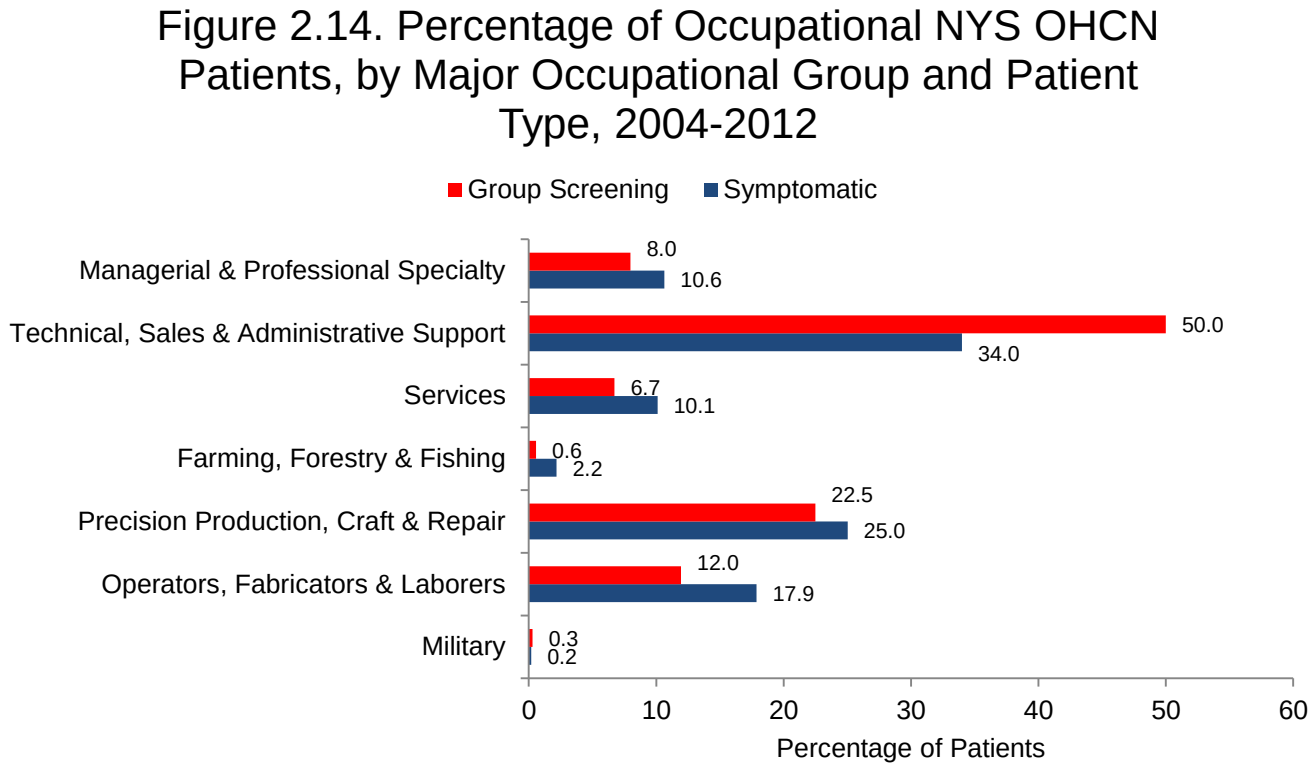


Figure 2.14a. Percentage of occupational NYS OHCN patients in services occupations, by type of service occupation and patient type. Examining the types of jobs among those in the services group showed that 1,285 (65%) were employed in cleaning and maintenance occupations, 438 (22%) in food services, and 268 (13%) 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 78%).

Figure 2.14a. Percentage of Occupational NYS OHCN Patients in Services Occupations, by Type of Service Occupation and Patient Type, 2004-2012

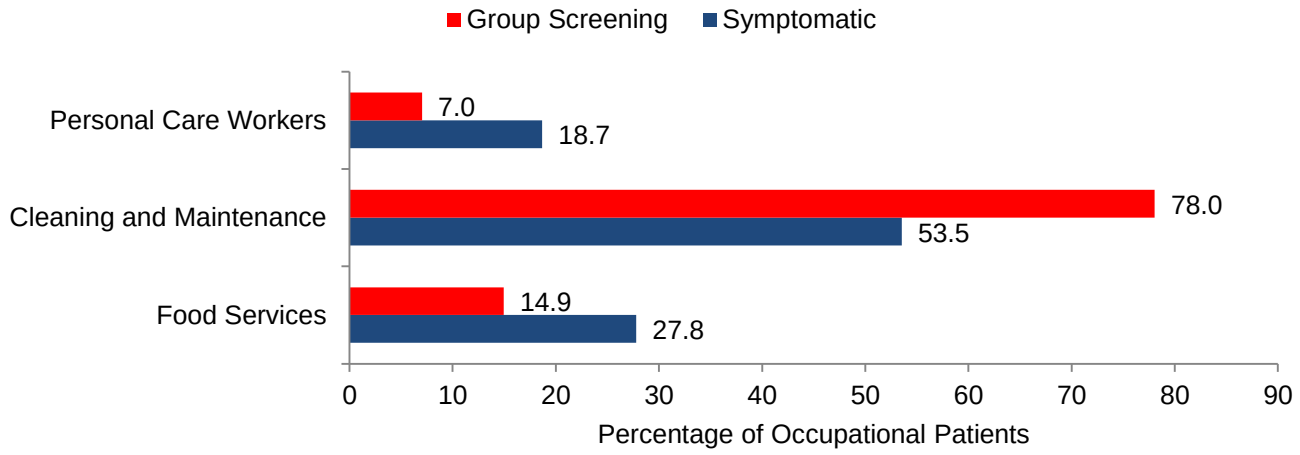
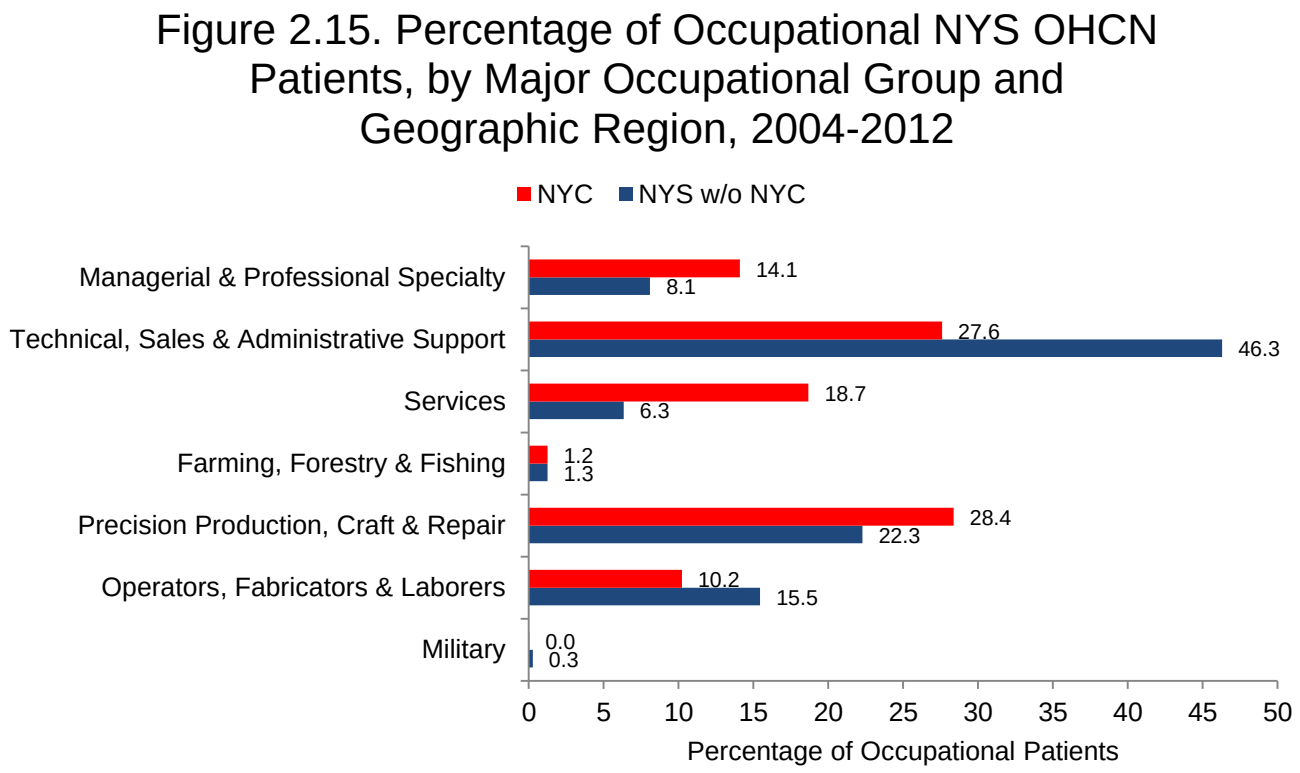


Table 2.14b. Top five most common occupations of NYS OHCN patients in services occupations, by patient type. Among symptomatic patients in services occupations, 348 (31%) were employed as janitors or building cleaners, 110 (10%) as maids or housekeepers and 104 (9%) as grounds maintenance workers. Among the group screening patients in services occupations, 576 (64%) were employed as janitors or building cleaners, and 63 (7%) as non-restaurant food servers.

Table 2.14b. Top Five Most Common Occupations of NYS OHCN Patients in Services Occupations, by Patient Type, 2004-2012 (In Order)

Symptomatic	Group Screening
1. Janitors and Building Cleaners (31%)	1. Janitors and Building Cleaners (64%)
2. Maids and Housekeeping (10%)	2. Non-restaurant Food Servers (7%)
3. Grounds Maintenance Workers (9%)	3. Grounds Maintenance Workers (7%)
4. Cooks (7%)	4. Maids and Housekeeping (3%)
5. Food Preparation Workers (4%)	5. Nonfarm Animal Caretakers (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 28% each). The largest percentage of Clinic patients outside of NYC were employed in technical, sales and administrative support occupations (46%) followed by employment in precision production, craft and repair occupations (22%). In NYC, 628 (19%) were employed in services occupations compared to 1,261 (6%) in the rest of NYS. Similarly, there were more people employed in farming, forestry and fishing outside of NYC (42 in NYC vs. 250 in the rest of NYS).



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 1,285 (65%) were employed in cleaning and maintenance occupations, 438 (22%) in food services, and 268 (13%) as personal care workers (data not shown). The largest percentage of Clinic patients were employed in cleaning and maintenance occupations in both NYC (75%) and the remainder of NYS (59%).

Figure 2.15a. Percentage of Occupational NYS OHCN Patients in Services Occupations, by Type of Service Occupation and Geographic Region, 2004-2012

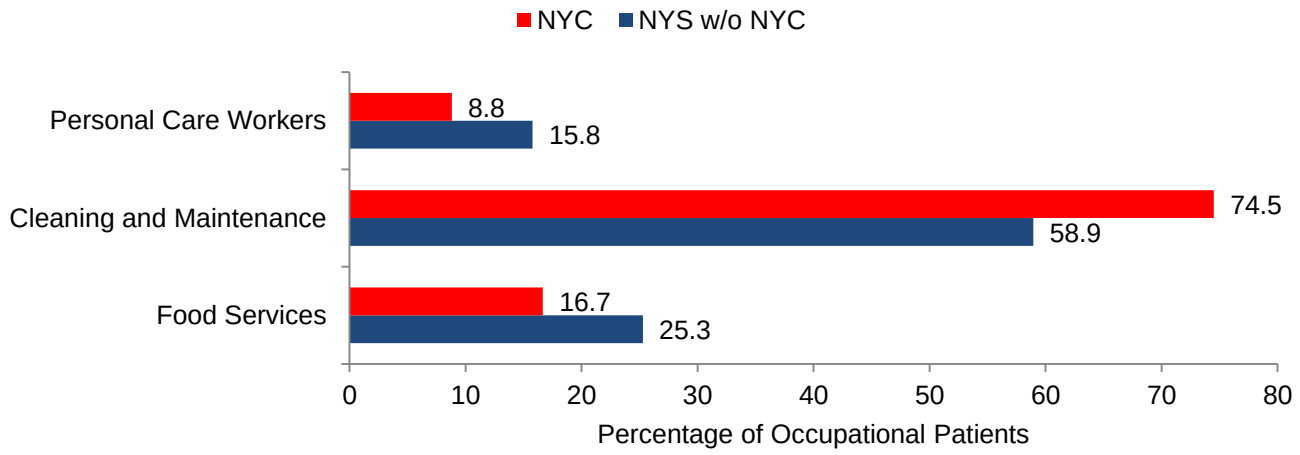


Figure 2.15b. Top five most common occupations of NYS OHCN patients in services industry, by geographic region. The largest percentage of Clinic patients in services occupations were employed as janitors and building cleaners in both NYC (59%) and the remainder of NYS (38%). In NYC, the next largest percentage were employed as grounds or maintenance workers (5%) while for the remainder of NYS, maids and housekeeping made up the second largest percentage (6%).

Table 2.15b. Top Five Most Common Occupations of NYS OHCN Patients in Services Occupations, by Geographic Region, 2004-2010 (In Order)

NYS w/o NYC	NYC
1. Janitors and Building Cleaners (38%)	1. Janitors and Building Cleaners (63%)
2. Grounds Maintenance Workers (11%)	2. Maids and Housekeeping (9%)
3. Non-restaurant Food Servers (7%)	3. Grounds Maintenance Workers (4%)
4. Maids and Housekeeping (6%)	4. Cooks (4%)
5. Cooks (5%)	5. Waiters and Waitresses / Transportation Attendants (3%)

Industries of Clinic Patients

Figure 2.16. Percentage of occupational NYS OHCN patients, by major industrial group and patient type. Among those patients seen for occupational exposures, 10,030 (31%) were employed in public administration; followed by 8,839 (27%) in the services industry and 4,279 (13%) in construction at the time of their first visit to the Clinic (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, 6,724 (42%) worked in public administration and 3,598 (22%) worked in the services industry; while among the symptomatic patients, 5,241 (32%) worked in the services industry and 3,306 (20%) worked in public administration.

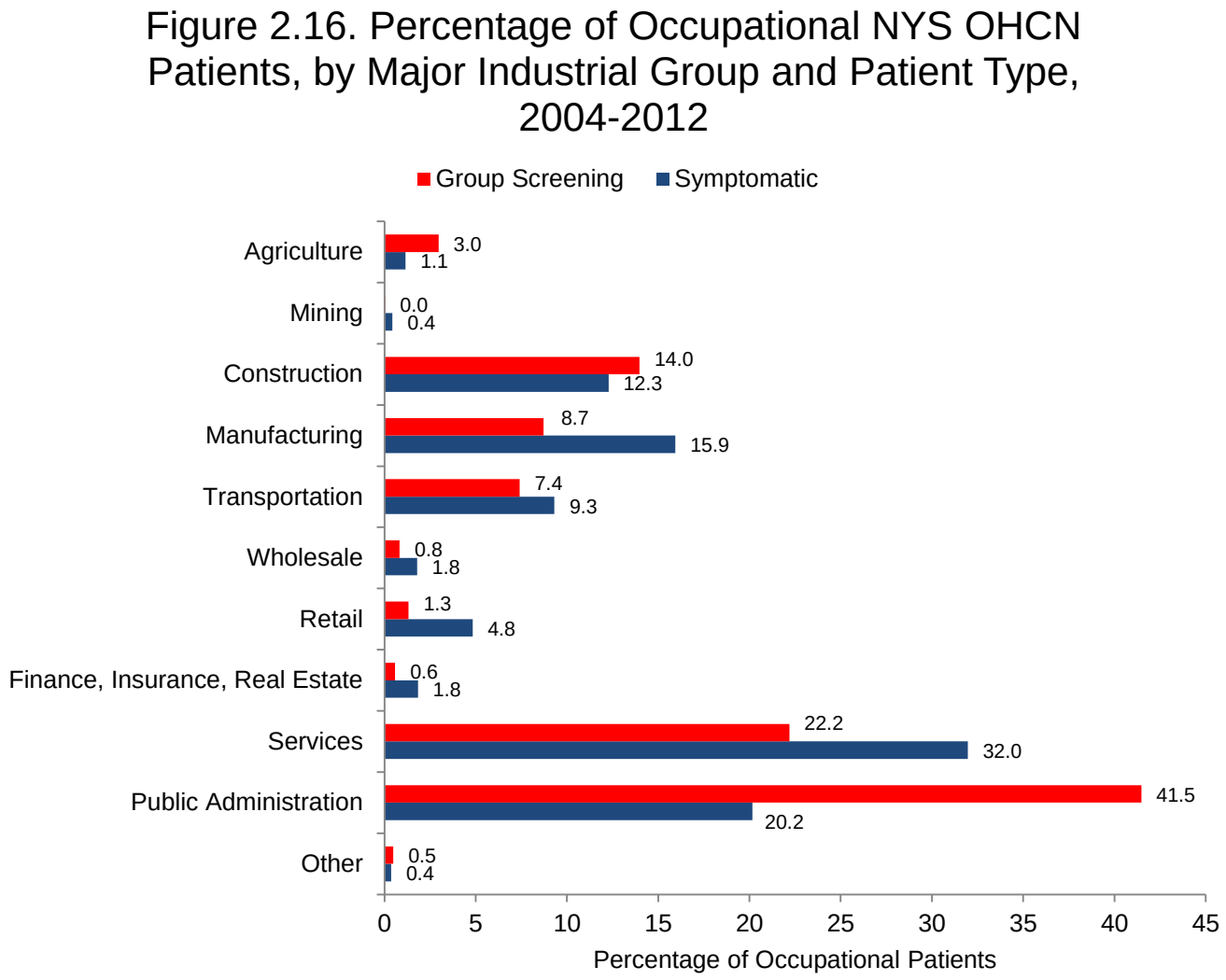


Figure 2.16a. Percentage of occupational NYS OHCN patients, in the services industry, by type of work and patient type. The largest percentage of Clinic patients working in the services industry were employed in health services occupations for both symptomatic patients (39%) and group screening patients (47%), followed by those in educational services (21% for symptomatic and 29% for group screening).

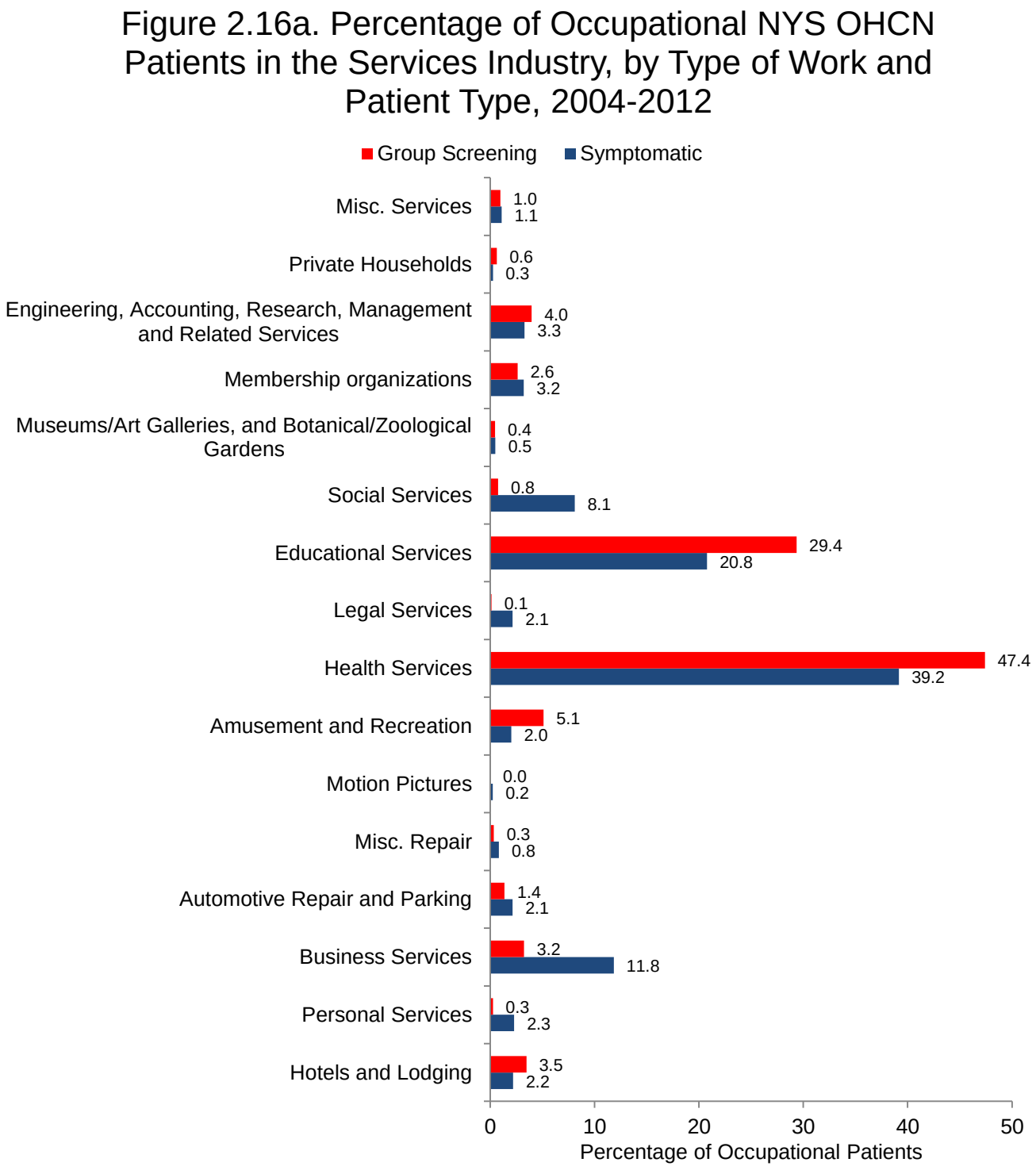


Figure 2.17. Percentage of occupational NYS OHCN patients, by major industrial group and geographic region. In NYC, 2,120 (44%) of occupational patients were employed in the services industry, compared to 6,207 (24%) in the rest of NYS. In contrast, 933 (20%) were employed in public administration in NYC, compared to 8,911 (34%) in NYS.

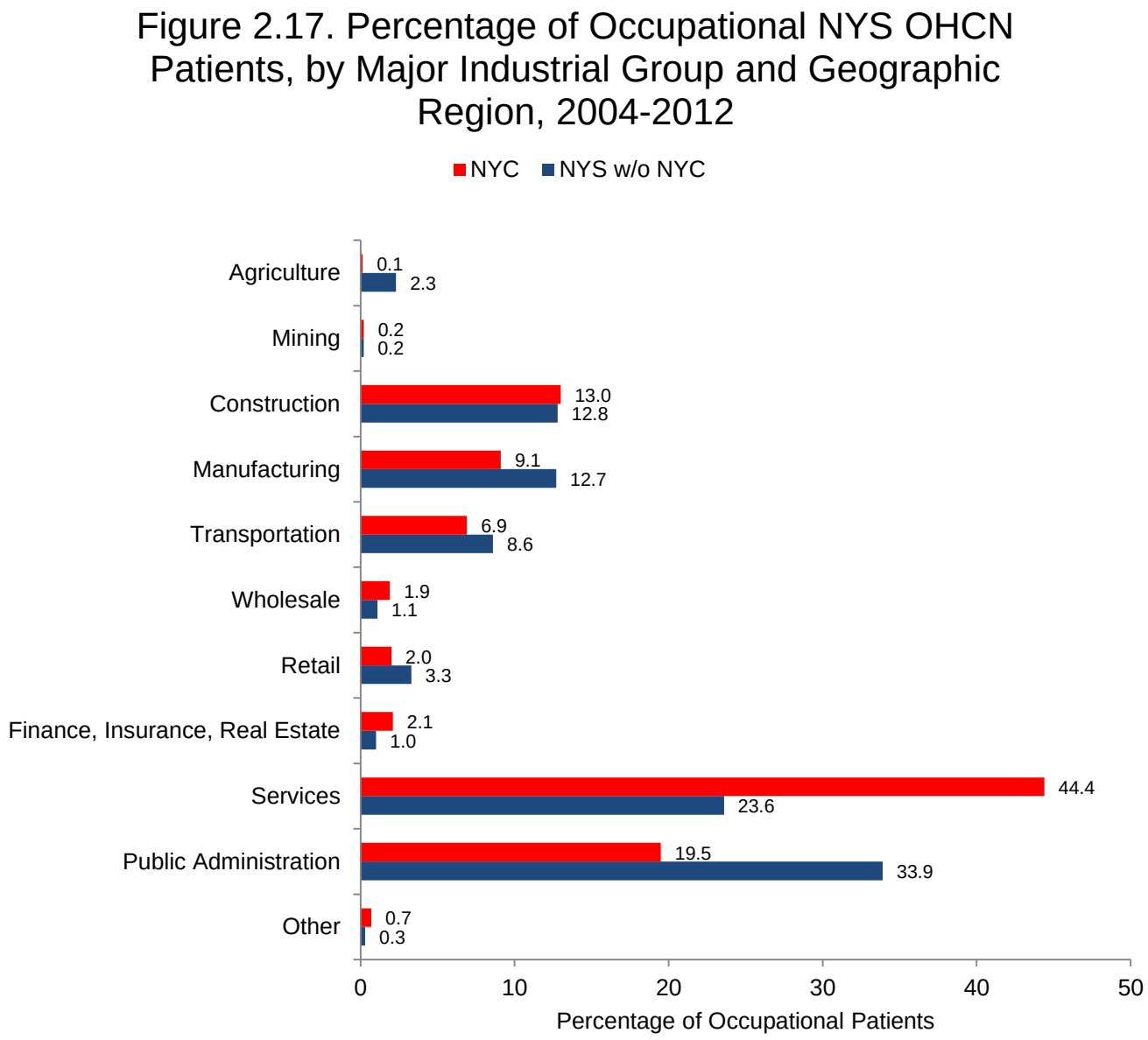
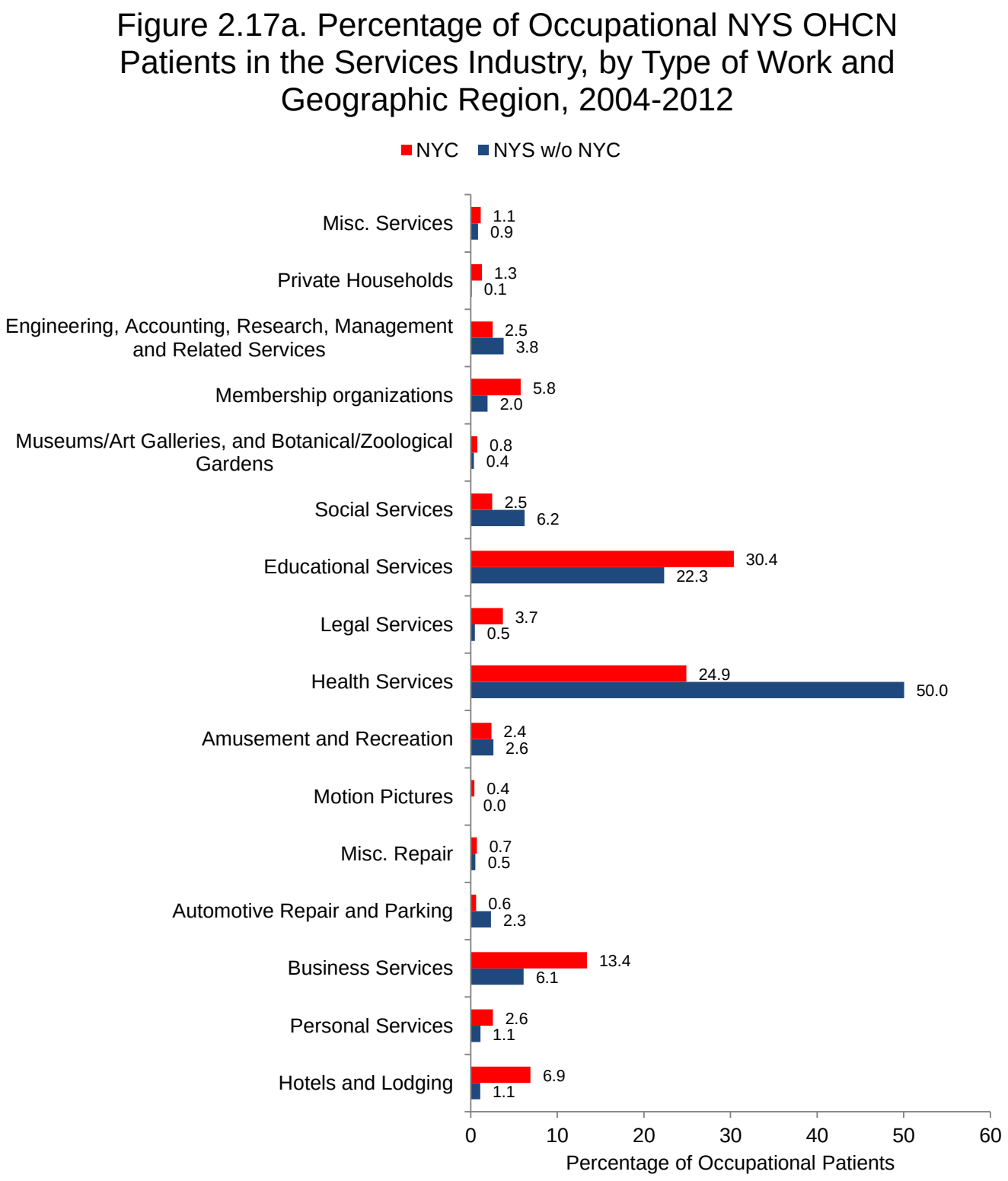
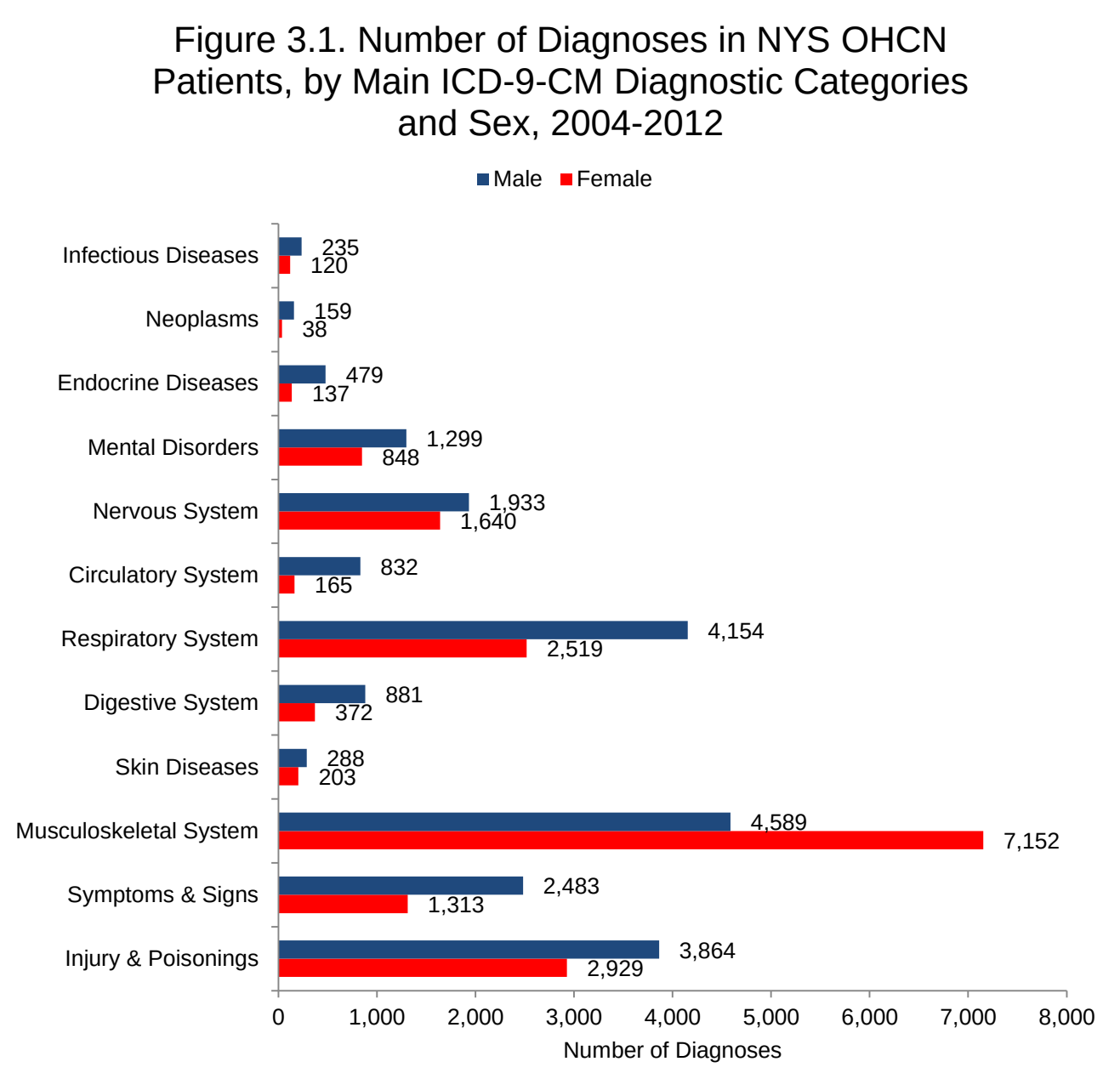


Figure 2.17a. Percentage of occupational NYS OHCN patients in the services industry, by type of work and geographic region. In NYC, 638 (30%) of the occupational patients were employed in educational services followed by 523 (25%) in health services. In the remainder of NYS, 3,050 (50%) were employed in health services and 1,361(22%) in educational services.



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 65,903 diagnoses made for the 26,821 patients seen by the Clinic Network between 2004 and 2012. Males were seen primarily for diseases of the musculoskeletal system (n=4,589), respiratory system (n=4,154), injuries and poisonings (n=3,864) and for symptoms and signs (n=2,483). Females were seen primarily for diseases of the musculoskeletal system (n=7,152), injuries and poisonings (n=2,929), and for diseases of the respiratory system (n=2,519). There were 27,009 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.



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 3,573 diagnoses of diseases in this category, of which 74% were work-related and 18% were possibly work-related. The majority of the diagnoses in this category were carpal tunnel syndrome (n=864) of which 87% were work-related; noise-induced hearing loss (n=494) of which 65% were work-related; cubital tunnel syndrome (n=486) of which 85% were work-related; peripheral nervous system disorders (n=390) of which 75% were work-related while another 17% were possibly work-related; and disorders of the eye (n=158) of which 63% were work-related (data not shown).

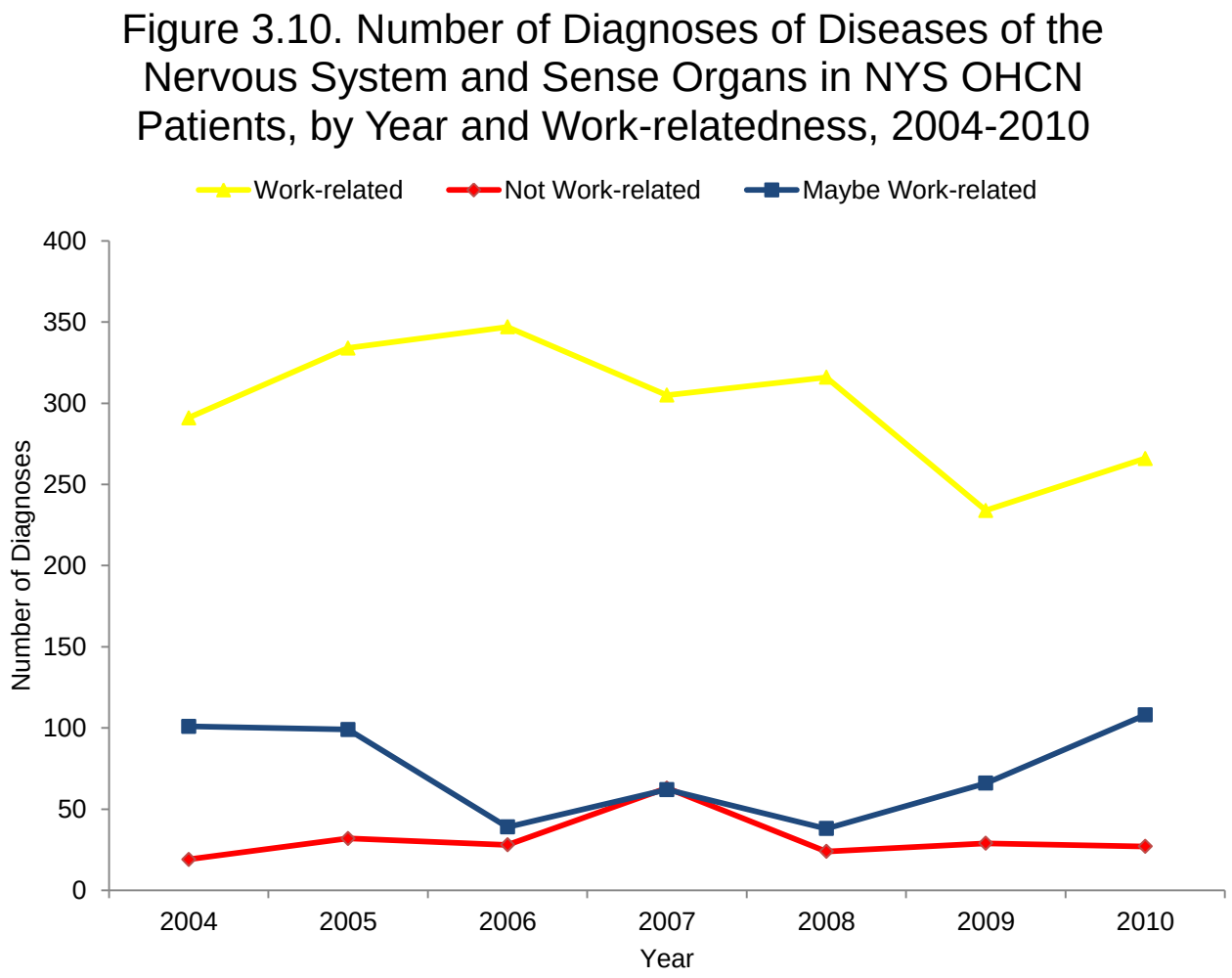
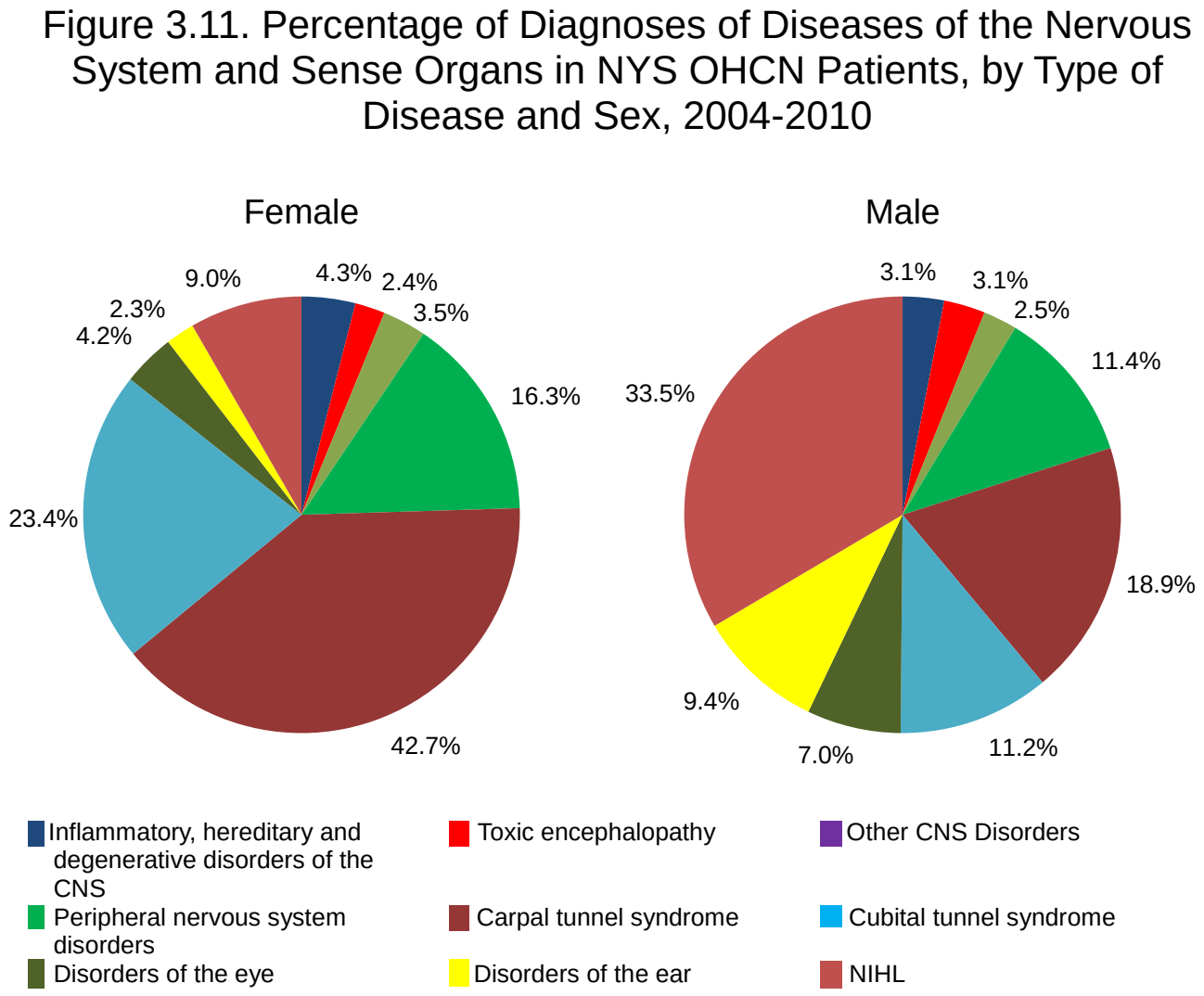


Figure 3.11. Percentage of diagnoses of diseases of the nervous system and sense organs in NYS OHCN patients, by type of disease and sex. An almost even number of diagnoses of diseases within this category occurred among males (n=1,436) and females (n=1,392). A third (34%) of the diagnoses among males were noise-induced hearing loss (NIHL), while nearly half (43%) of the diagnoses among females were carpal tunnel syndrome. Among the NIHL diagnoses, 95% resided in NYS outside of NYC (data not shown).



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 and World Trade Center (WTC) status. There were 6,673 diagnoses of a disease of the respiratory system. Of these diagnoses, 63% were work-related and another 23% were possible work-related. There were 2,603 (40%) respiratory system disease diagnoses related to the WTC disaster. As of 2005, the majority of individuals with WTC exposures were seen in clinics specializing in monitoring this population and therefore, were not seen as part of the Clinic Network.

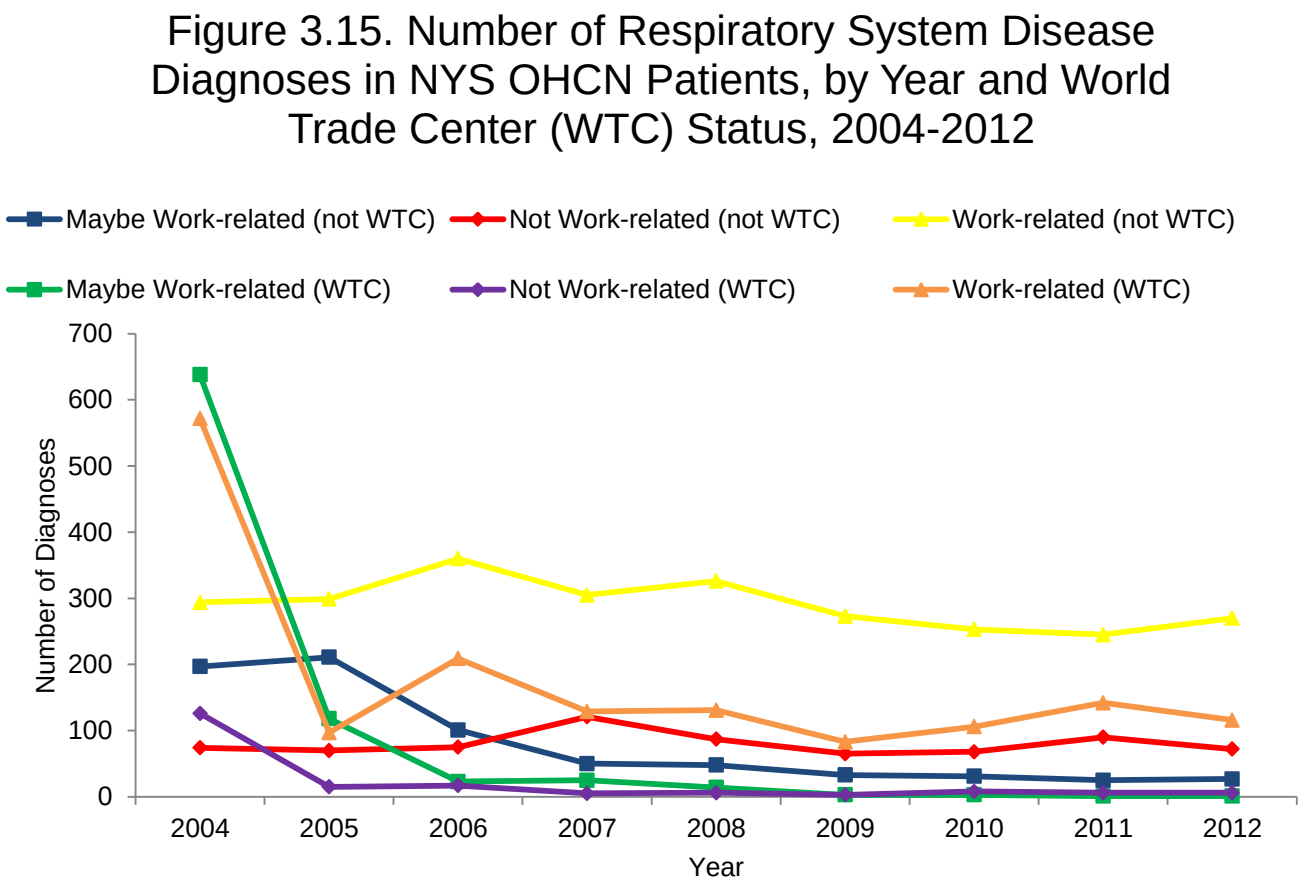


Figure 3.18. Percentage of work-related asthma diagnoses in NYS OHCN patients, by industry of employment and World Trade Center (WTC) status. The majority of non-WTC work-related asthma diagnoses occurred among those employed in the services industry (46%), followed by the manufacturing industry (31%). The principle occupations at risk for work-related asthma, excluding the WTC disaster, included machine operators (7%), administrative support (7%), and service occupations (5%) (data not shown). Work-related asthma diagnoses among those with WTC-related exposures occurred among those employed in public administration (51%), services (30%), and construction (25%) industries. The principle occupations at risk for work-related asthma among the WTC exposed population included protective services (25%), construction trades (14%) and professional specialties (12%) (data not shown).

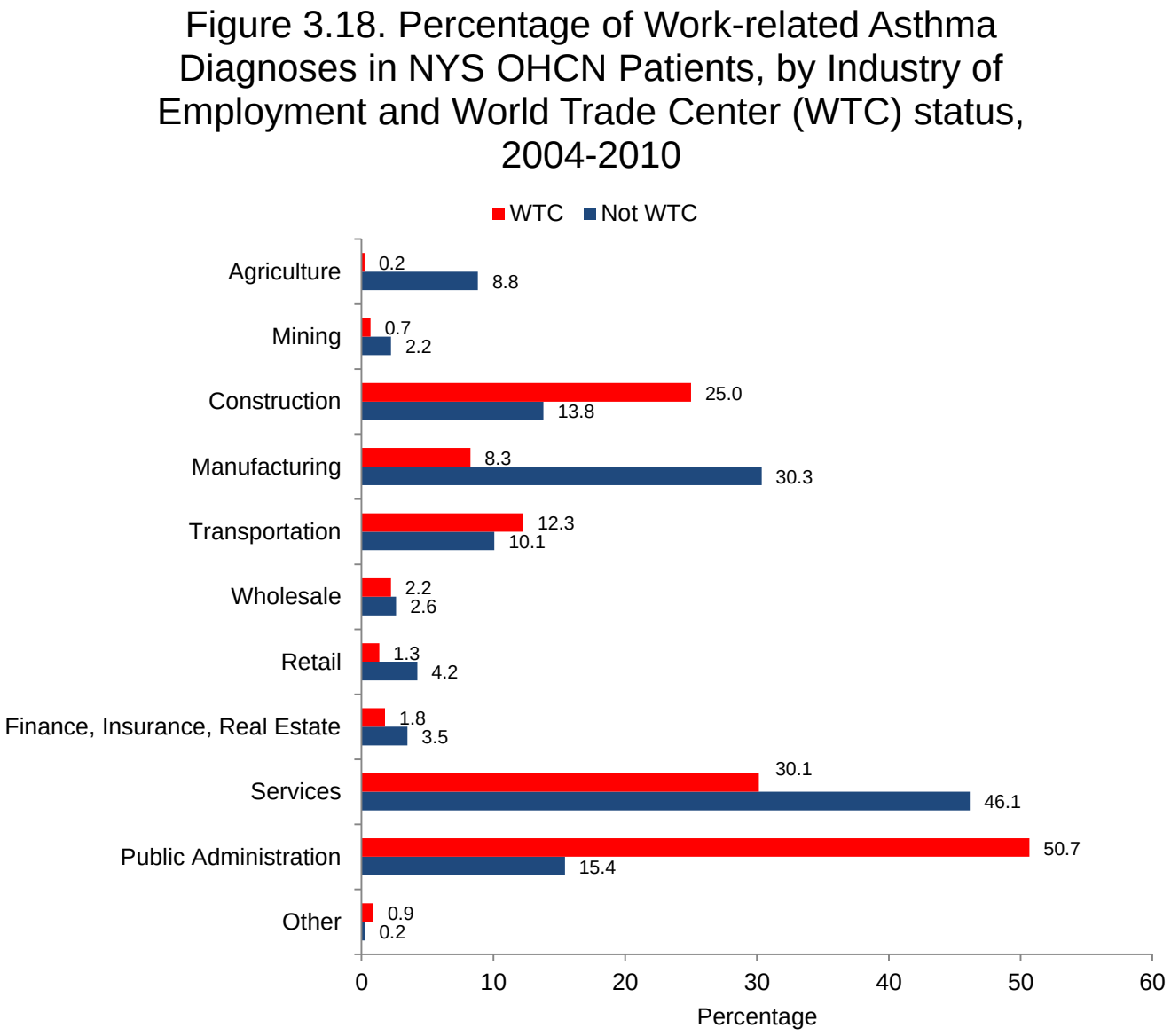
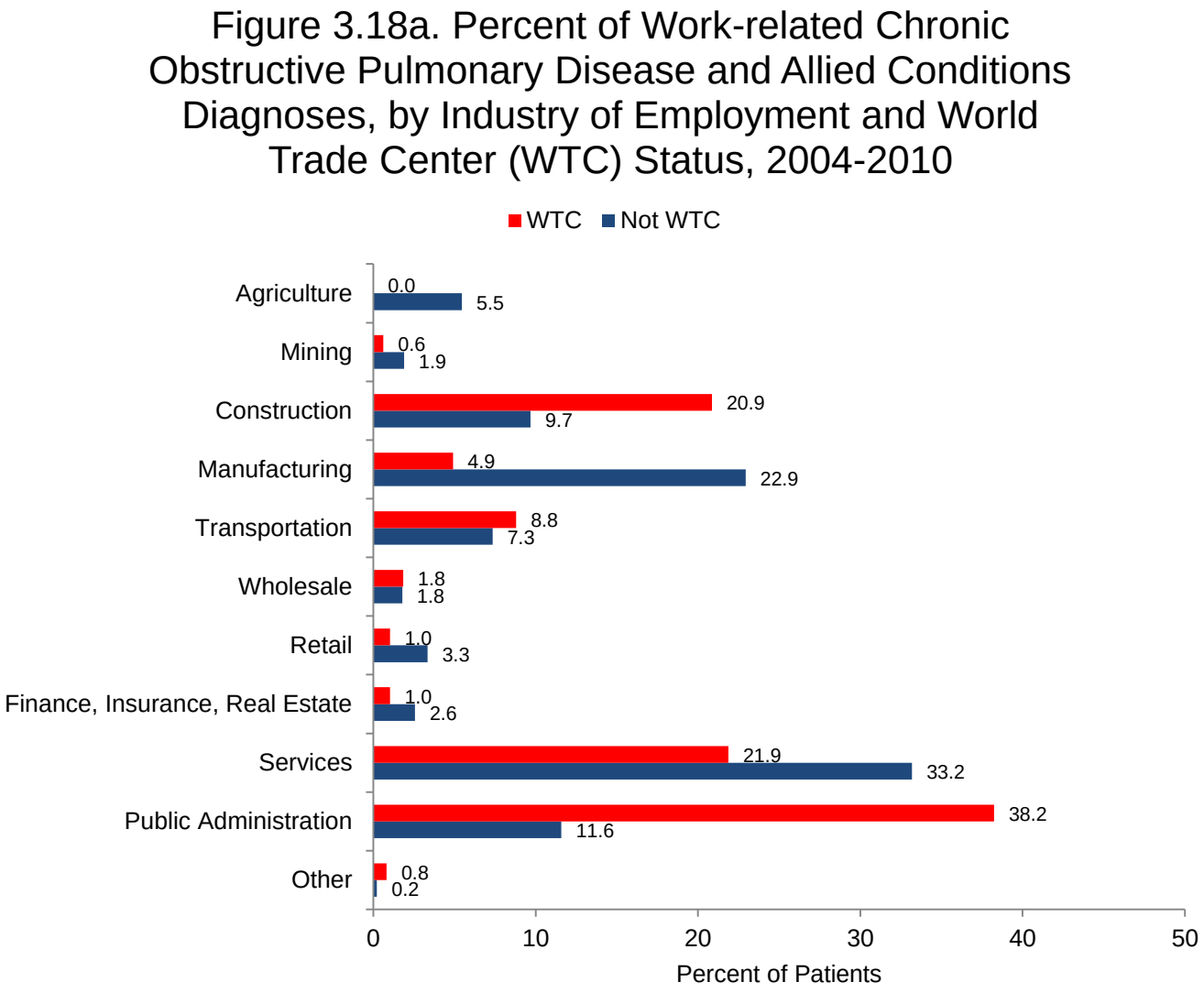
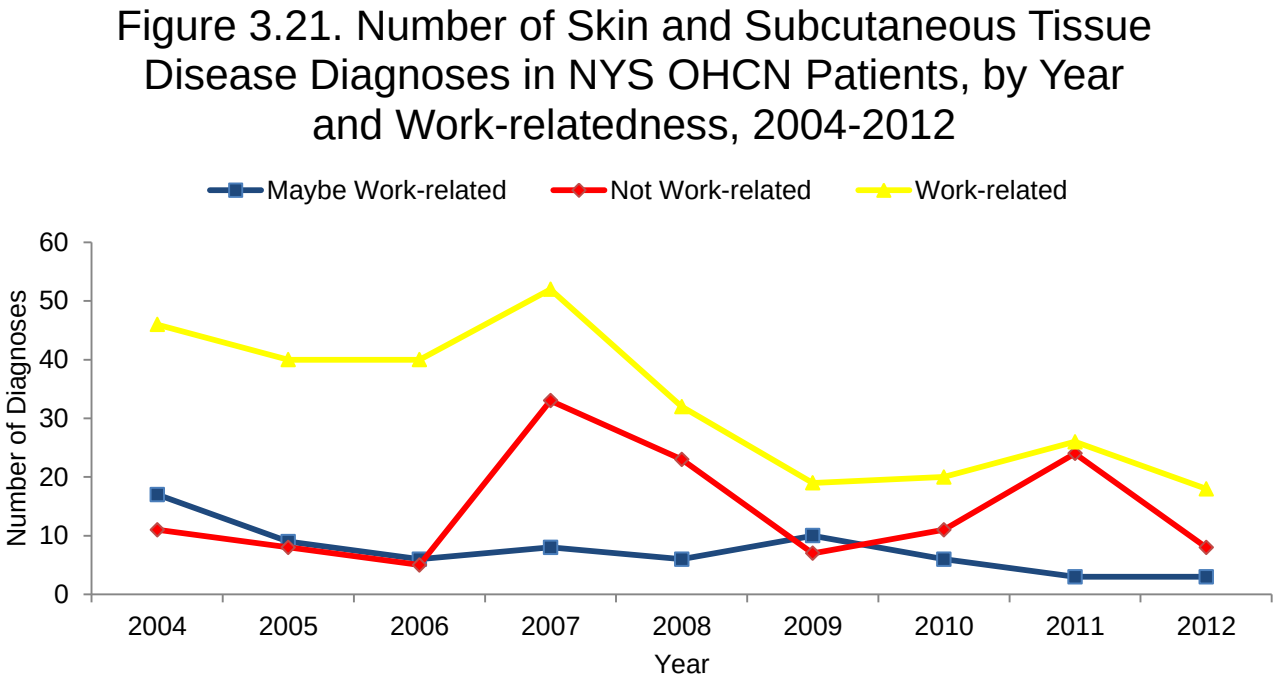


Figure 3.18a. Percentage of work-related chronic obstructive pulmonary disease (COPD) and allied conditions diagnoses, in NYS OHCN patients, by industry of employment and World Trade Center (WTC) status. The majority of non-WTC work-related COPD diagnoses occurred among those employed in the services industry (33%) followed by those in the manufacturing industry (23%). Work-related COPD diagnoses among those with WTC-related exposures occurred among those employed in public administration (38%), services (22%), and construction (21%) industries. The principle occupations at risk for work-related COPD among the WTC exposed population included protective services (22%), construction trades (19%) and professional specialties (11%) (data not shown).



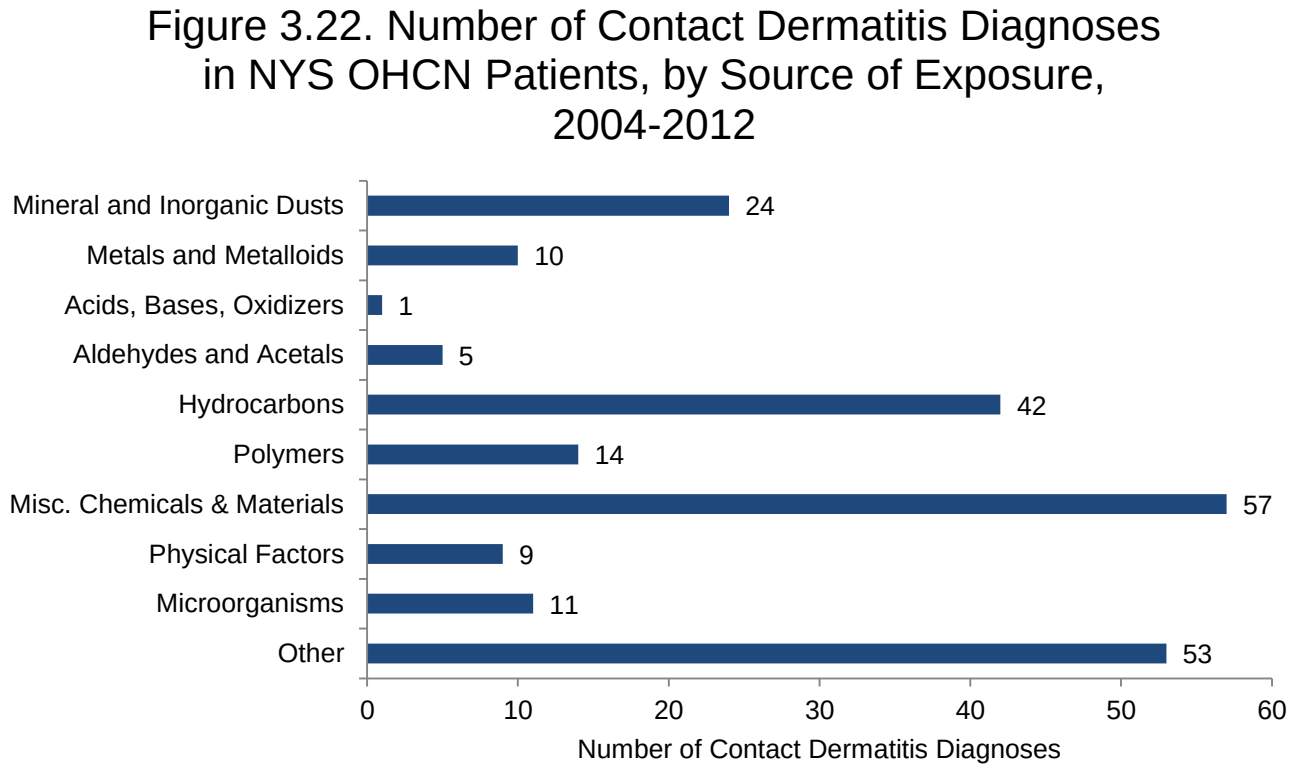
Diseases of the Skin and Subcutaneous Tissue
(ICD-9-CM Codes 680-709)

Figure 3.21. Number of skin and subcutaneous tissue disease diagnoses in NYS OHCN patients, by year and work-relatedness. There were 491 diagnoses of a disease of the skin and subcutaneous tissues, of which 60% were work-related and 14% were possibly work-related. There were 228 diagnoses of contact dermatitis (ICD-9-CM Code 692) of which 64% were work-related (data not shown). Another 14 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. Overall, there were 491 patient visits where diseases in this category were diagnosed (data not shown).



Contact Dermatitis

Figure 3.22. Number of contact dermatitis diagnoses in NYS OHCN patients, by source of exposure. There were 226 diagnoses of contact dermatitis. Exposures among these patients included 42 hydrocarbon exposures, including 10 exposures to cutting oils and 21 exposures to non-specified solvents. Another 57 exposures were to miscellaneous chemicals and materials including 15 exposures to non-specified chemicals such as chemical dust, 9 exposures to cleaning materials, and 6 to indoor air pollutants. Patients could be exposed to more than one agent.



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 11,741 diagnoses of a disease of the musculoskeletal system of which 87% were work-related and another 8% were possibly work-related. In general, there was a steady increase in diagnoses of these conditions from 2004 through 2007, and then a decrease in the number of diagnoses after 2007. Among the diagnoses of work-related musculoskeletal conditions, 6,278 (61%) were among females; 4,264 (42%) were among NYC residents; and 5,674 (55%) were among Whites, 2,048 (20%) among African-Americans, and 1,961 (19%) among Hispanics (data not shown). Overall there were 10,231 patient visits where diseases in this category were diagnosed.

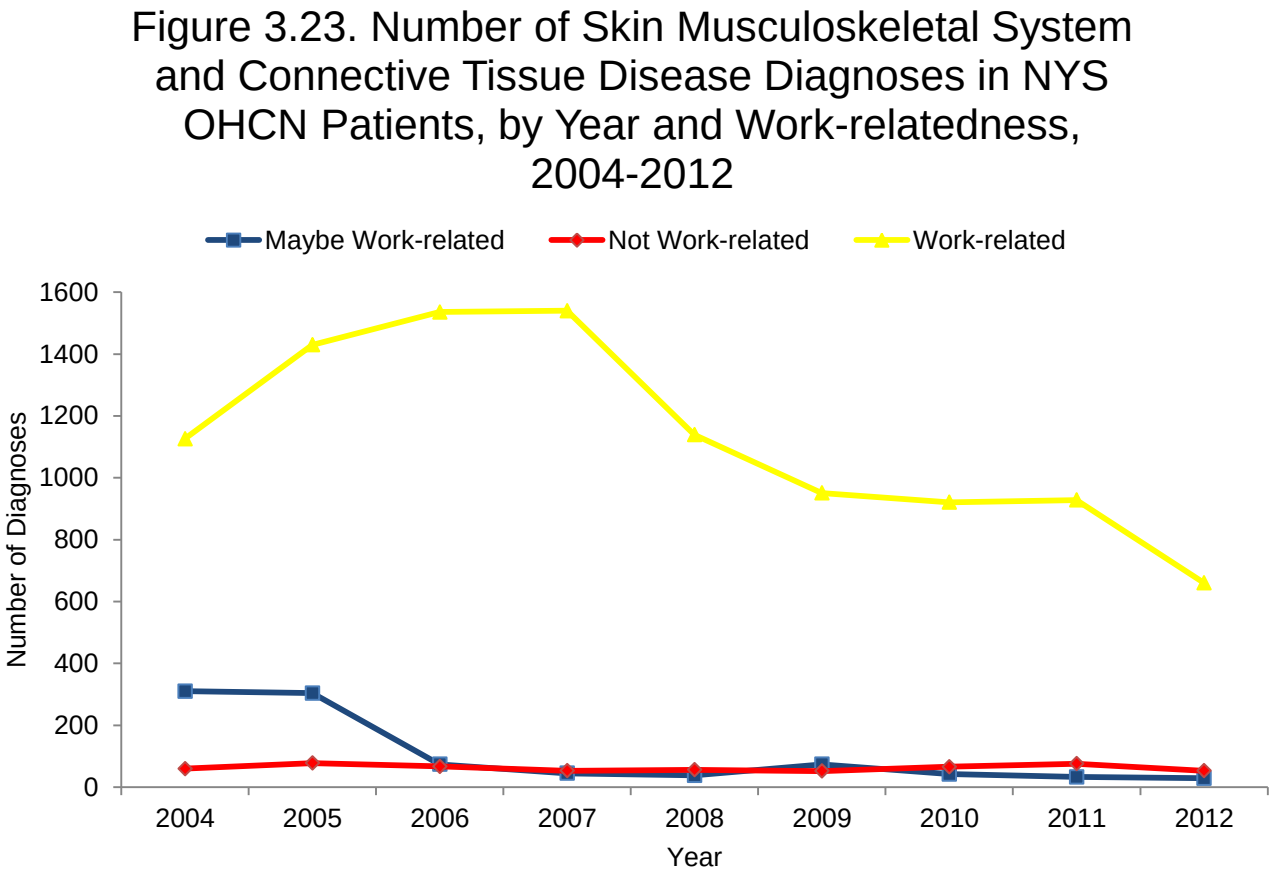


Figure 3.24. Percentage of work-related musculoskeletal system and connective tissue disease diagnoses in NYS OHCN patients, by occupation and ethnicity. Approximately one-fourth (24%) of those with diagnoses of musculoskeletal diseases worked in services occupations, including 776 nursing aides and 282 janitors and cleaners. There were 832 diagnoses among African-Americans. Forty-two percent of all musculoskeletal disease diagnoses among African Americans occurred to workers in service occupations. There were 1,763 diagnoses (17%) among those who worked in executive and professional specialty occupations with 110 diagnoses among editors and reporters. Twenty-four percent of the diagnoses of musculoskeletal diseases among Asians and Whites worked in executive and professional specialty occupations. There were 1,261 musculoskeletal disease diagnoses among those who worked in administrative support occupations, of which 674 (53%) were White and 351 (28%) were African-American; 1,035 were diagnosed among machine operators with 459 (44%) among Hispanic workers and 407 (39%) among White workers. Among the machine operators diagnosed with musculoskeletal diseases, 140 worked with textile sewing machines.

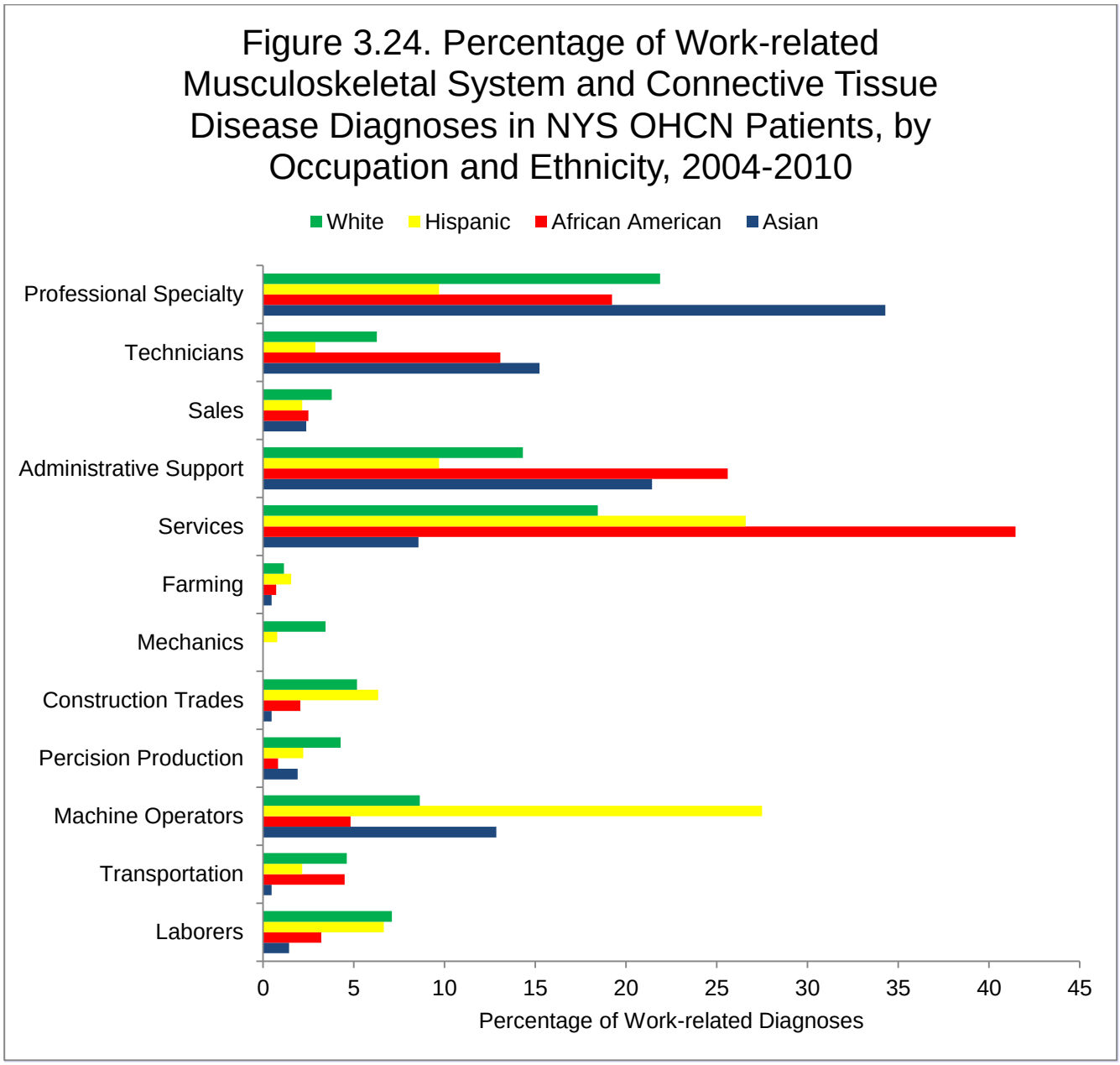
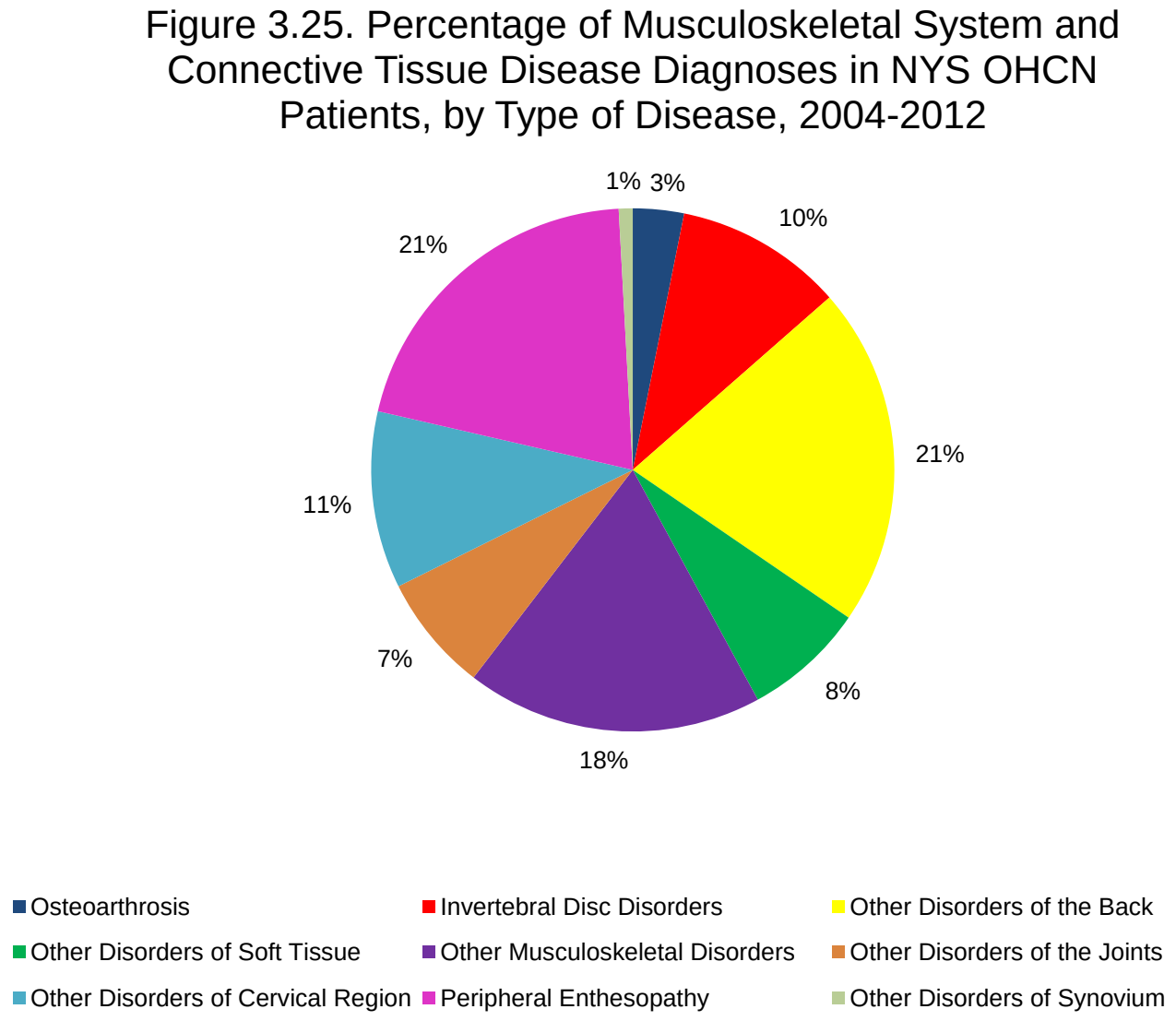
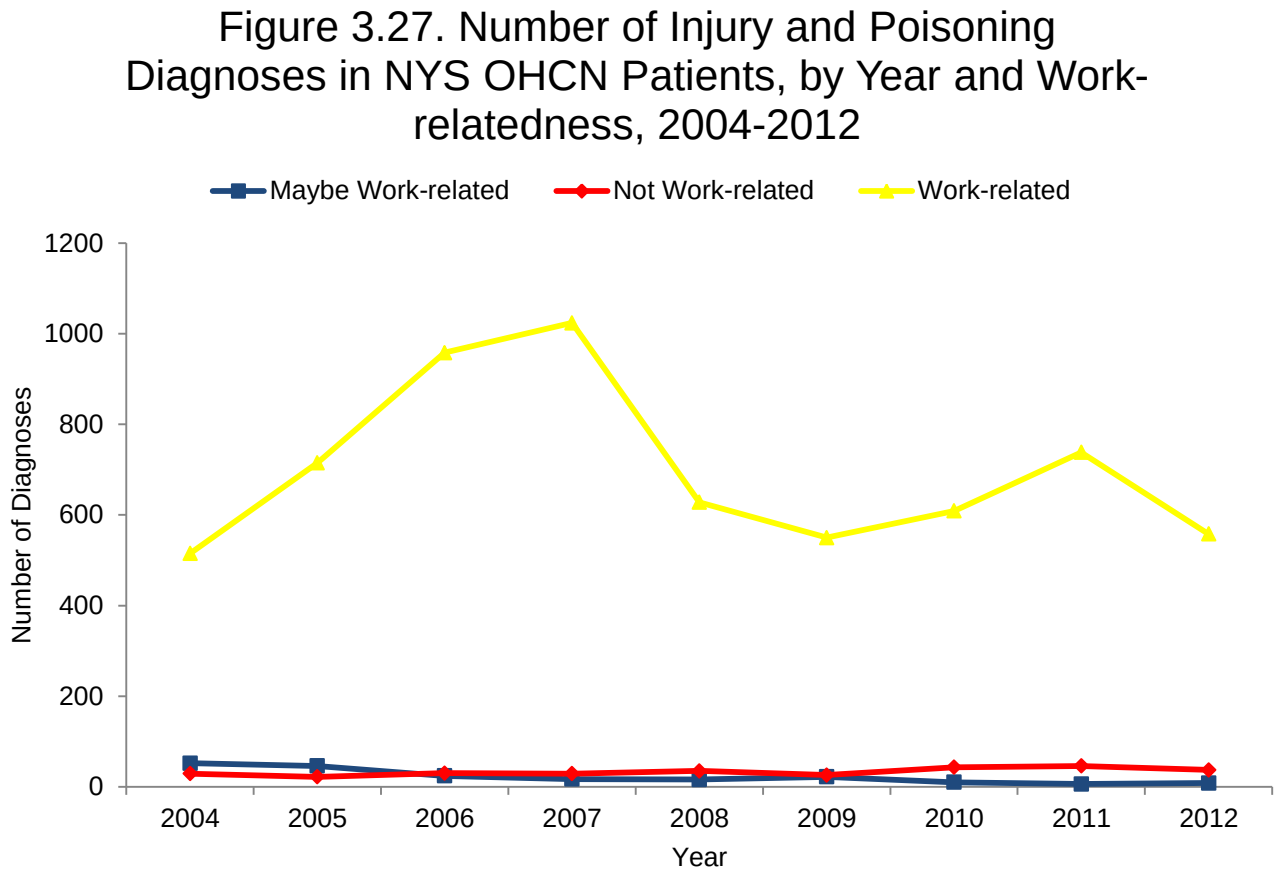


Figure 3.25. Percentage of musculoskeletal system and connective tissue disease diagnoses in NYS OHCN patients, by type of disease. There were 1,285 diagnoses of disorders of the cervical region (ICD-9-CM Code 723) of which 755 were cervicalgia and 363 were cervical radiculitis. There were 2,467 diagnoses of other disorders of the back (ICD-9-CM Code 724) of which 1,351 were lumbago and 393 were radicular syndrome of lower limbs. Twenty-one percent (n=2,411) of the diagnoses were peripheral enthesopathies (ICD-9-CM Code 726), including 839 with rotator cuff syndrome, 719 with enthesopathy of the elbow (267 with medial epicondylitis and 436 with lateral epicondylitis), 385 diagnoses of enthesopathy of the wrist, and 65 with unspecified enthesopathy. An additional 1,333 diagnoses were made for other disorders of the synovium (ICD-9-CM Code 727), of which 354 were de Quervain's disease and 382 were other tenosynovitis of the hand and wrist. Other disorders of the soft tissue (ICD-9-CM Code 729) accounted for 882 diagnoses including 563 for myalgia and myositis.



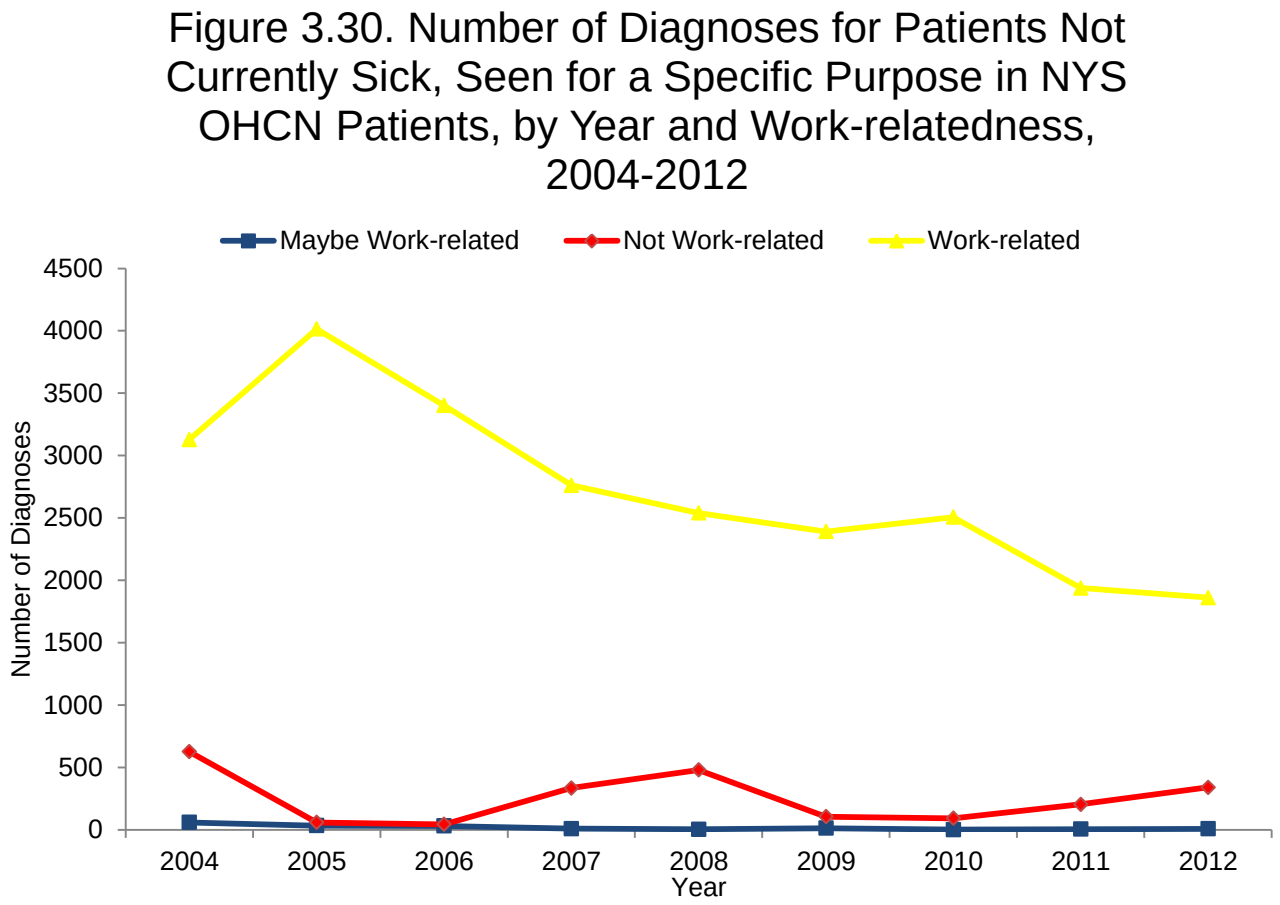
Injuries and Poisonings
(ICD-9-CM Codes 800-999)

Figure 3.27. Number of injury and poisoning diagnoses in NYS OHCN patients, by year and work-relatedness. There were 6,793 diagnoses of injuries or poisonings, of which 93% were work-related and another 3% were possibly work-related. There were 6,793 patient visits where patients were diagnosed with injuries and poisonings (data not shown).



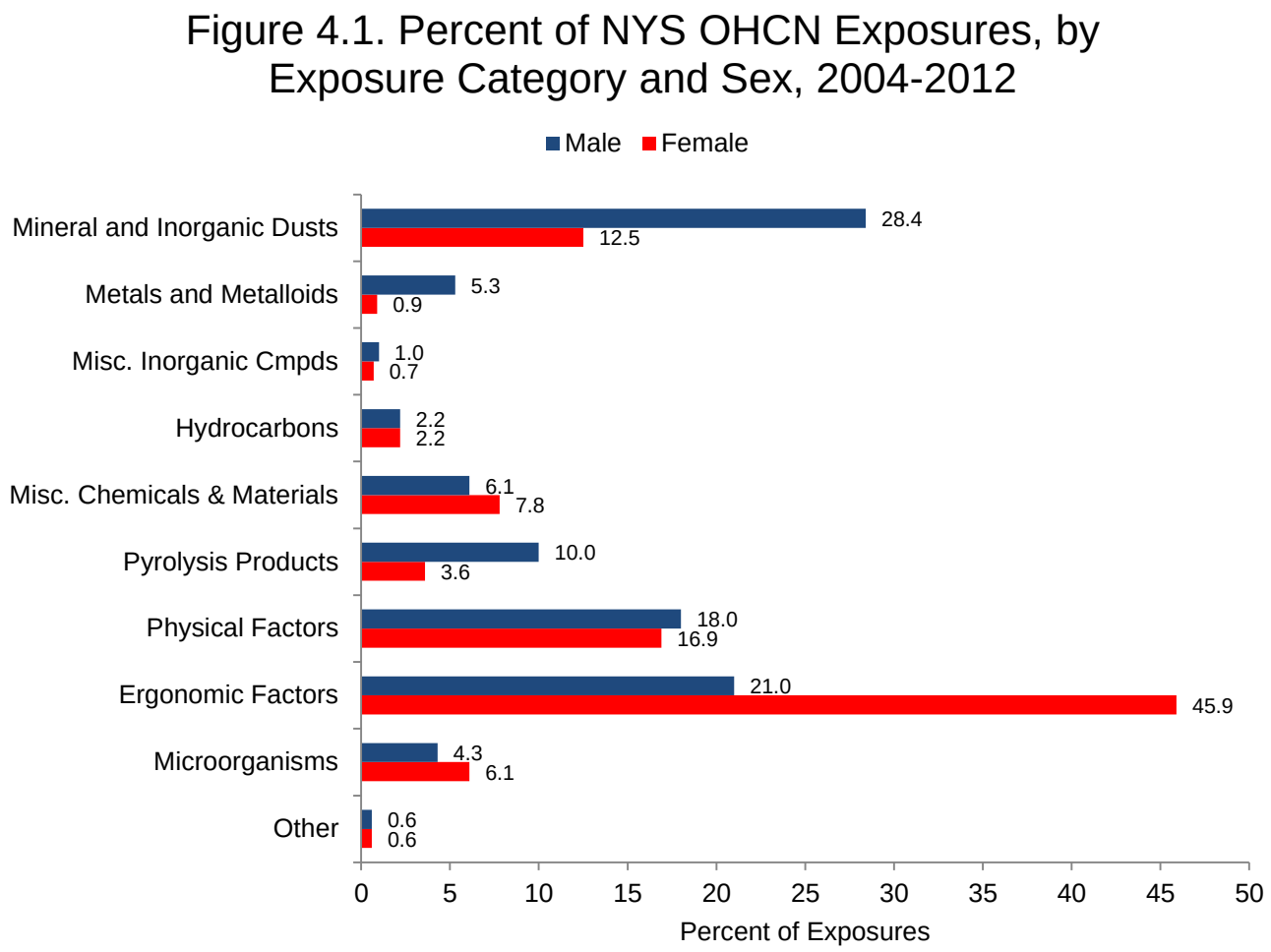
V-Codes
(ICD-9-CM Codes V01-V84)

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 27,009 diagnoses classified with V-codes; 22,171 (82%) were seen as part of group screenings.



Patient Exposures

Figure 4.1. Percentage of NYS OHCN exposures, by exposure category and sex. Overall there were 60,809 different exposures identified in the NYS OHCN database. Approximately one-third of these (n=18,706) were ergonomic factors, including keyboard use and repetitive motion. Another quarter of these (n=13,503) were mineral and inorganic dusts, including asbestos, silica and non-specified dusts. The next largest groups of exposures included physical factors such as heat, cold, and radiation (n=10,700), pyrolysis products (n=4,597), and microorganisms including molds and yeast (n=3,036). Miscellaneous chemicals and materials accounted for 4,122 exposures and included indoor and outdoor pollutants and pesticides. Metals accounted for 2,169 exposures and included lead. Non-specified hydrocarbons accounted for 1,091 exposures. Females were more likely to have reported exposures to ergonomic factors, and males were more likely to have reported exposures to mineral and inorganic dusts.



Exposures to Mineral and Inorganic Dusts

Figure 4.2. Number of NYS OHCN exposures to mineral and inorganic dust, by year, World Trade Center (WTC) status and patient type. There were 13,503 reported exposures to mineral and inorganic dusts, of which 3,149 (23%) were among group screening patients and 6,616 (49%) were related to the World Trade Center (WTC) disaster. Among the dust exposures, 2,915 were asbestos and 8,969 were non-specified dusts (data not shown).

The majority of exposures to mineral and inorganic dusts were associated with V-codes recorded in the medical records (n=5,317). 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). Of these, 2,027 (38%) were related to the WTC disaster. Among the non-WTC-related dust exposures associated with V-codes (n=3,290), 62% were among group screening patients. Another 4,631 dust exposures were associated with diagnoses of diseases of the respiratory system, and 1,900 were associated with diagnoses of symptoms, signs and ill defined conditions (data not shown).

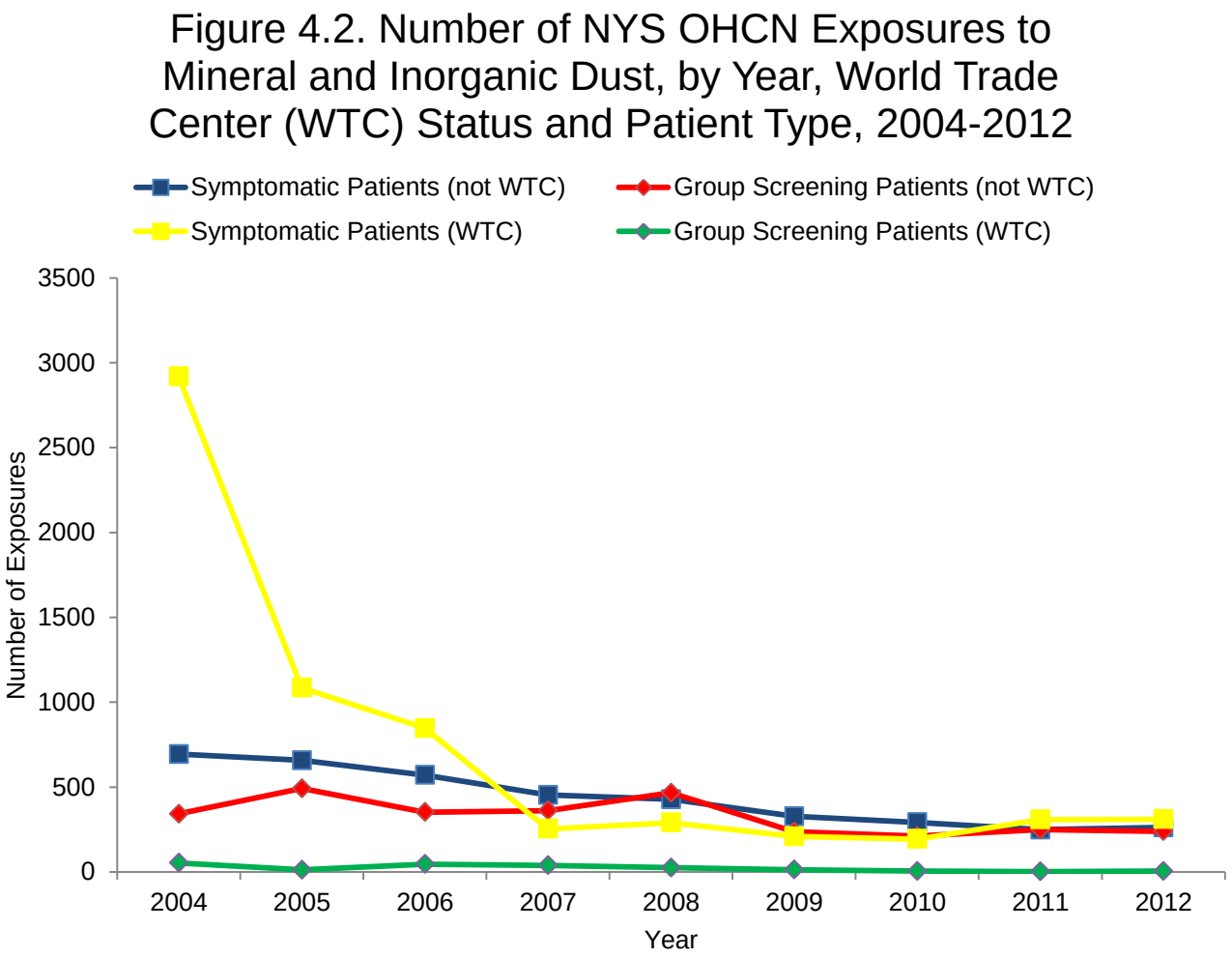
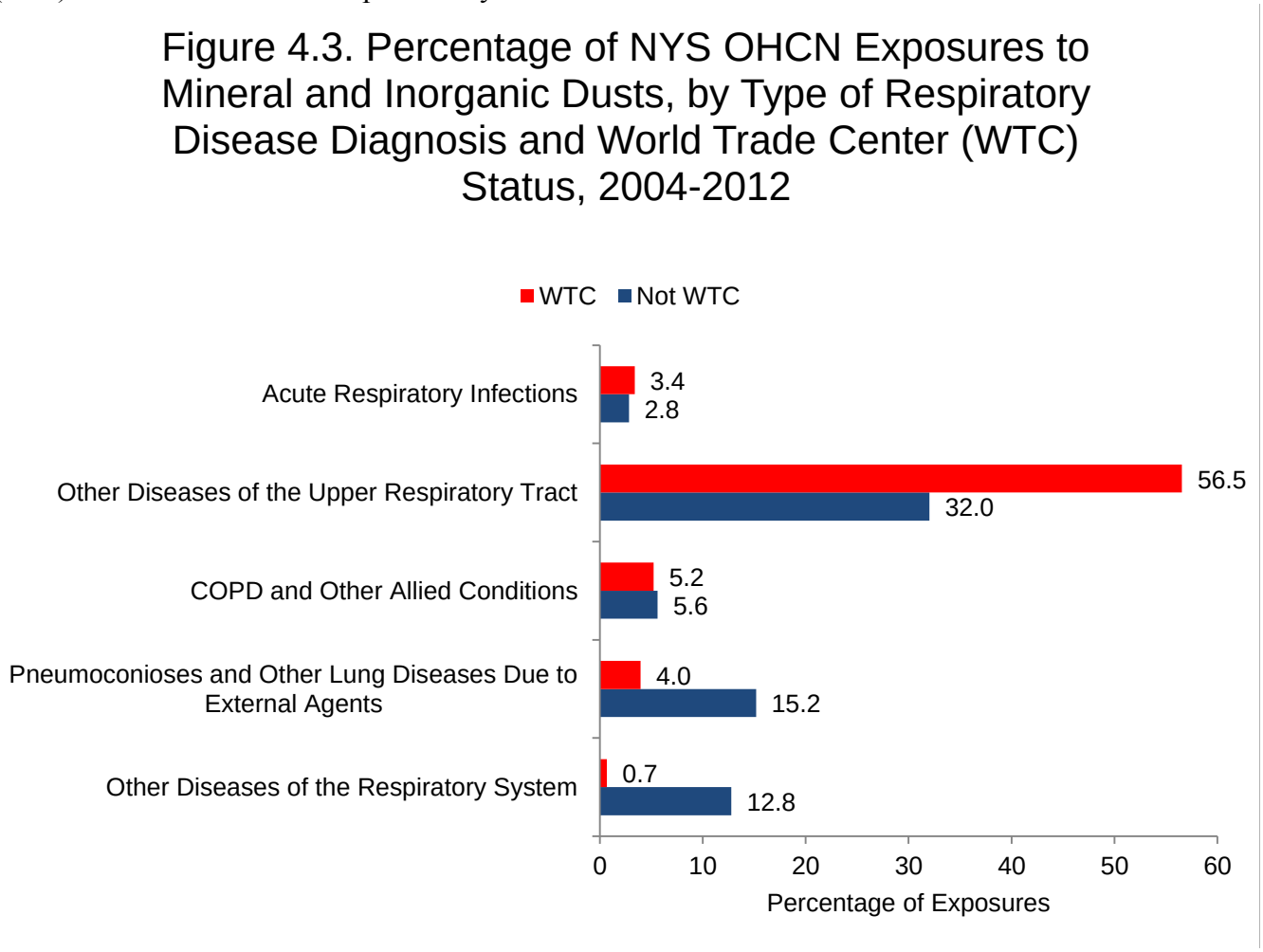


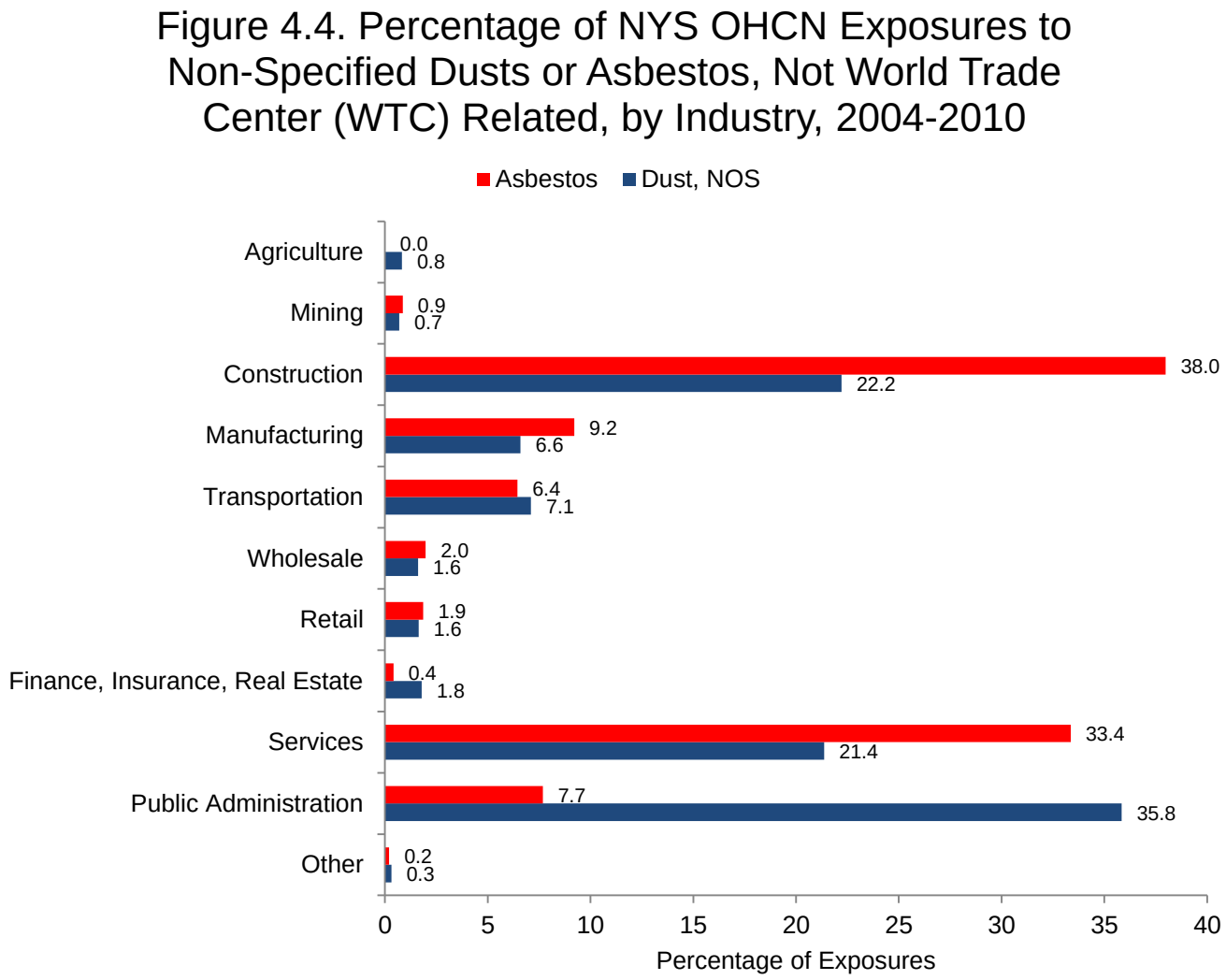
Figure 4.3. Percentage of NYS OHCN exposures to mineral and inorganic dusts, by type of respiratory disease diagnosis and World Trade Center (WTC) status. Among reported exposures to mineral and inorganic dusts not related to the WTC disaster, there were 2,332 diagnoses of respiratory diseases, of which 237 (10%) were pleural thickening due to asbestos (ICD-9-CM Code 511). Among the 294 diagnoses of pneumoconioses among dust exposures not related to the WTC disaster, 164 were asbestosis (ICD-9-CM Code 501) and 153 diagnoses were respiratory conditions due to chemical fumes and vapors (ICD-9-CM Code 506). There were an additional 752 (37%) diagnoses of "chronic obstructive pulmonary disease and other conditions" among dust exposures not related to WTC, of which 495 were asthma (ICD-9-CM Code 493), 120 were chronic airway obstructions (ICD-9-CM Code 496) and 95 were chronic bronchitis (ICD-9-CM Code 491).

Among the reported mineral and inorganic dust exposures related to the WTC disaster, there were 2,010 diagnoses of respiratory diseases. Among those, 1,183 (57%) were diagnosed with "other diseases of the upper respiratory tract", including 495 patients with chronic pharyngitis and 307 with chronic sinusitis (ICD-9-CM Codes 472 and 473, respectively). There were another 738 diagnoses (35%) of "chronic obstructive pulmonary disease and other conditions" of which 490 were asthma.



Non-specified Dusts or Asbestos

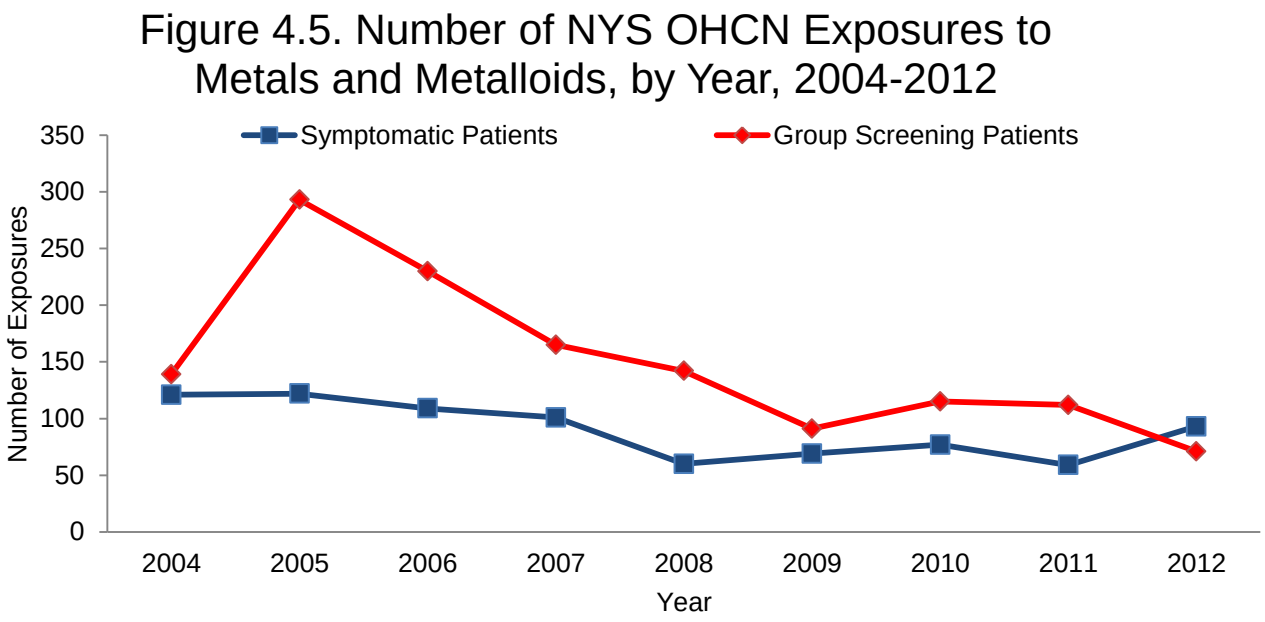
Figure 4.4. Percentage of NYS OHCN exposures to non-specified dusts or asbestos, not World Trade Center (WTC) related, by industry. Exposures to asbestos, not related to the WTC disaster, were reported primarily among those in construction industries (38%) followed closely by the services industries (33%). The latter group was from exposures in elementary and secondary schools and colleges. Exposures to non-specified dust not related to the WTC disaster were reported primarily in public administration (36%), construction (22%), and services (21%) industries.



Exposures to Metals and Metalloids

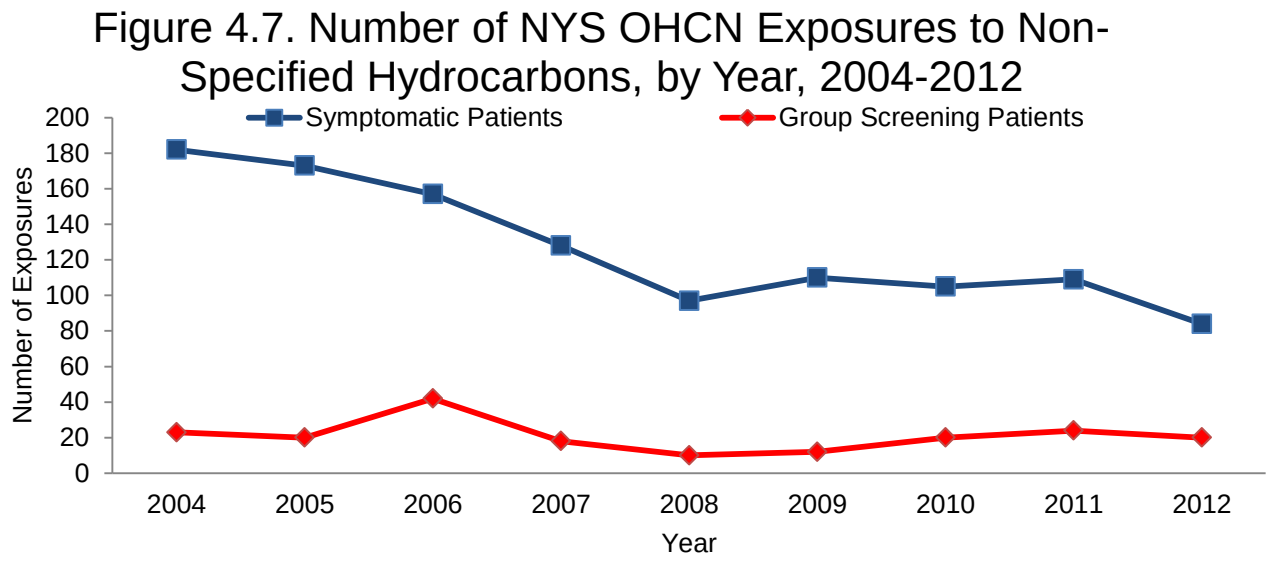
Figure 4.5. Number of NYS OHCN exposures to metals and metalloids, by year. There were 2,169 reported exposures to metals and metalloids, of which 1,358 (63%) were among group screening patients. Included among these exposures were 1,569 exposures to lead, 46 to inorganic mercury, and 59 to non-specified welding (data not shown). Among those with reported exposures to lead, 768 (58%) were from the construction industry.

Nearly half of reported exposures were associated with V-codes recorded in the medical records (n=893). Among these, 699 (78%) were group screening patients. Another 834 exposures were associated with diagnoses of injuries and poisonings of which 265 (40%) were toxic effects of lead and its compounds (ICD-9-CM Code 984). Twenty percent (n=109) of exposures associated with this diagnosis were not part of group screenings. Another 106 metals exposures were associated with diseases of the respiratory system (data not shown).



Exposures to Non-specified Hydrocarbons

Figure 4.7. Number of NYS OHCN exposures to non-specified hydrocarbons, by year. There were 1,334 reported exposures to non-specified hydrocarbons, of which 189 (14%) were among group screening patients. The reported exposures were primarily solvents (n=890) and paint (n=236) (data not shown). The diagnoses associated with these exposures were varied, with 494 (37%) diseases of the respiratory system, 212 (16%) signs and symptoms, and 157 (12%) injuries and poisonings (data not shown).



Exposures to Ergonomic Factors

Figure 4.13. Number of NYS OHCN exposures to ergonomic factors, by year. There were 18,706 reported exposures to ergonomic factors, of which 673 (4%) were among group screening patients.

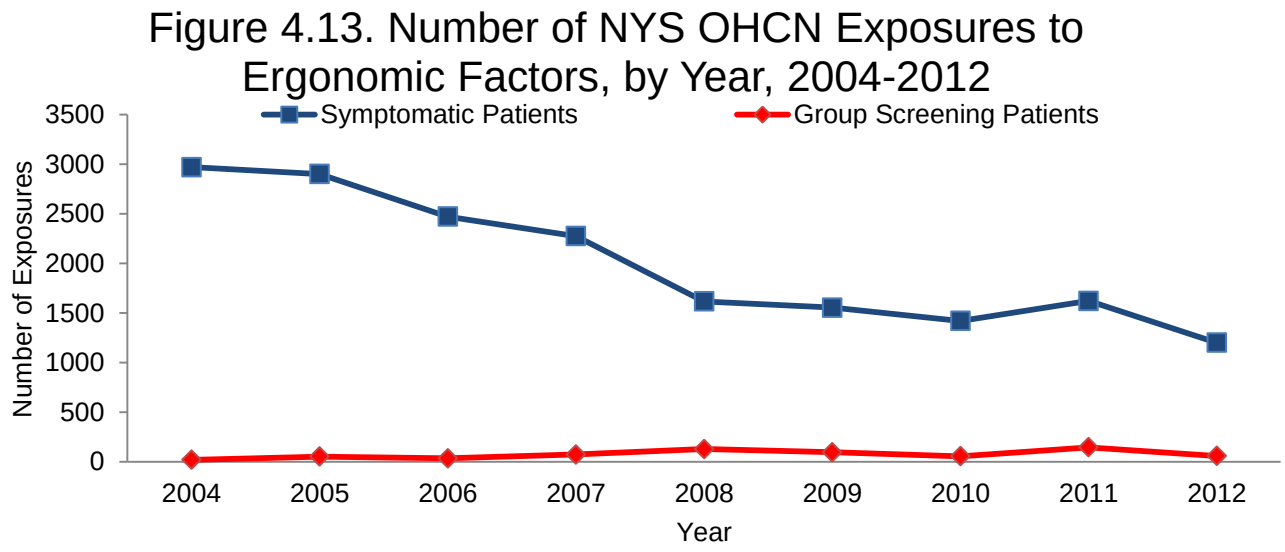
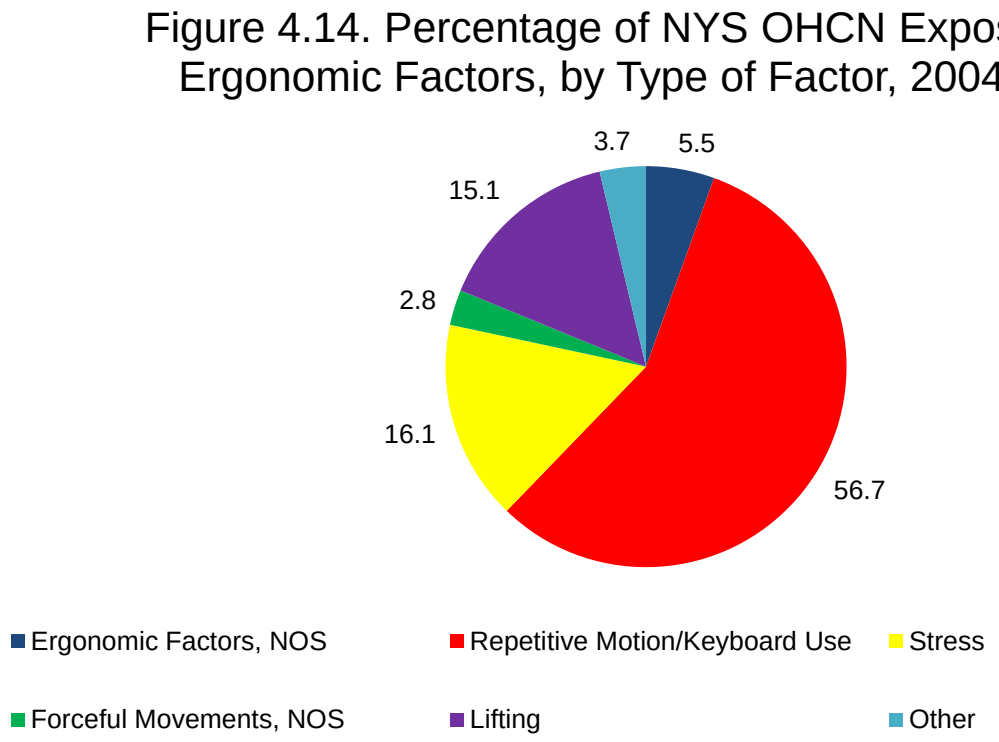


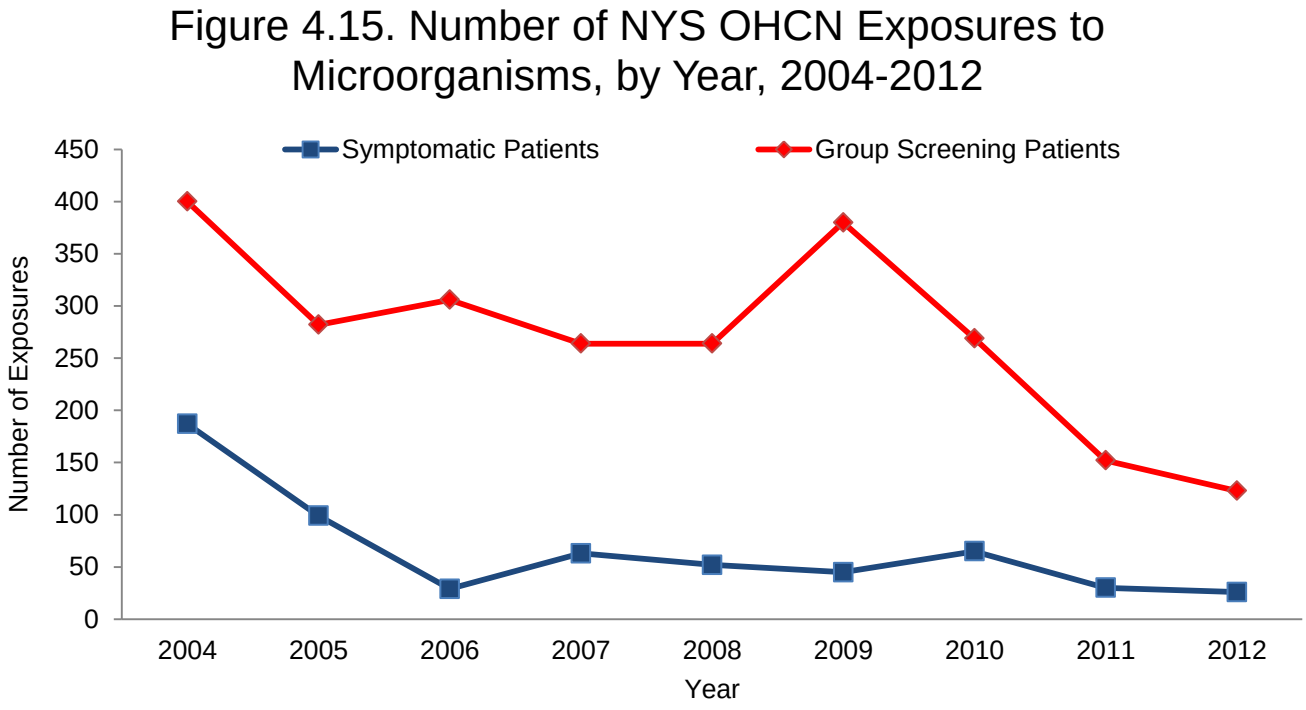
Figure 4.14. Percentage of NYS OHCN exposures to ergonomic factors, by type of factor. Of these reported exposures, 10,597 (57%) were repetitive motion including keyboard use, 3,014 (16%) were stress, and 2,816 (15%) were lifting. Another 1,030 (6%) were to non-specified ergonomic factors.

Of those reported exposures to factors associated with stress, 84% were diagnosed with mental disorders. Exposures to repetitive motion were primarily associated with diagnoses of carpal tunnel syndrome (n=1,093) (ICD-9-CM Code= 354.0), tenosynovitis of the hand or wrist including de Quervain's disease (n=781) (ICD-9-CM Codes 727.04 and 727.05), lateral or medial epicondylitis (n=756) (ICD-9-CM Codes 726.31 and 726.32), and cubital tunnel syndrome (n=585) (ICD-9-CM Code 354.2) (data not shown).



Exposures to Microorganisms

Figure 4.15. Number of NYS OHCN exposures to microorganisms, by year. There were 3,036 reported exposures to microorganisms, of which 2,440 (80%) were among group screening patients. The majority of these patients (n=1,607) were exposed to non-specified infectious agents, and 589 (24%) were exposed to molds (data not shown). Most of these patients were seen for prophylactic vaccinations against diseases including arthropod-borne viral diseases (n=286) (ICD-9-CM Code V05) or for other routine specified and unspecified examinations (n=1,081) (ICD-9-CM Codes V72.85 and V72.90) (data not shown).



Industries and Occupations of Patients

Services
(SIC Codes 70-89)

Figure 5.24. Occupations of NYS OHCN patients working in the services industry, by patient type. Patients working in the services industry were primarily employed in service occupations. Within the services occupations, 41% were seen as part of group screenings. The principle services occupations included 976 working in cleaning and building services occupations, excluding households; 228 in protective services, including 140 working in firefighting and fire prevention occupations; 151 in personal service occupations, including 69 in childcare; 103 in private households; and 154 in food preparation and service occupations. There were 1,951 service industry patients working in managerial and professional specialty occupations, of which 37% were group screenings. These included 369 teachers, 446 in professional specialties, and 742 in health treating occupations. Another 1,567 patients were employed in technical, sales and administrative support occupations, of which 37% were group screenings. These patients were primarily in administrative support occupations, including secretaries, stenographers and typists (n=152) and general office clerks (n=36).

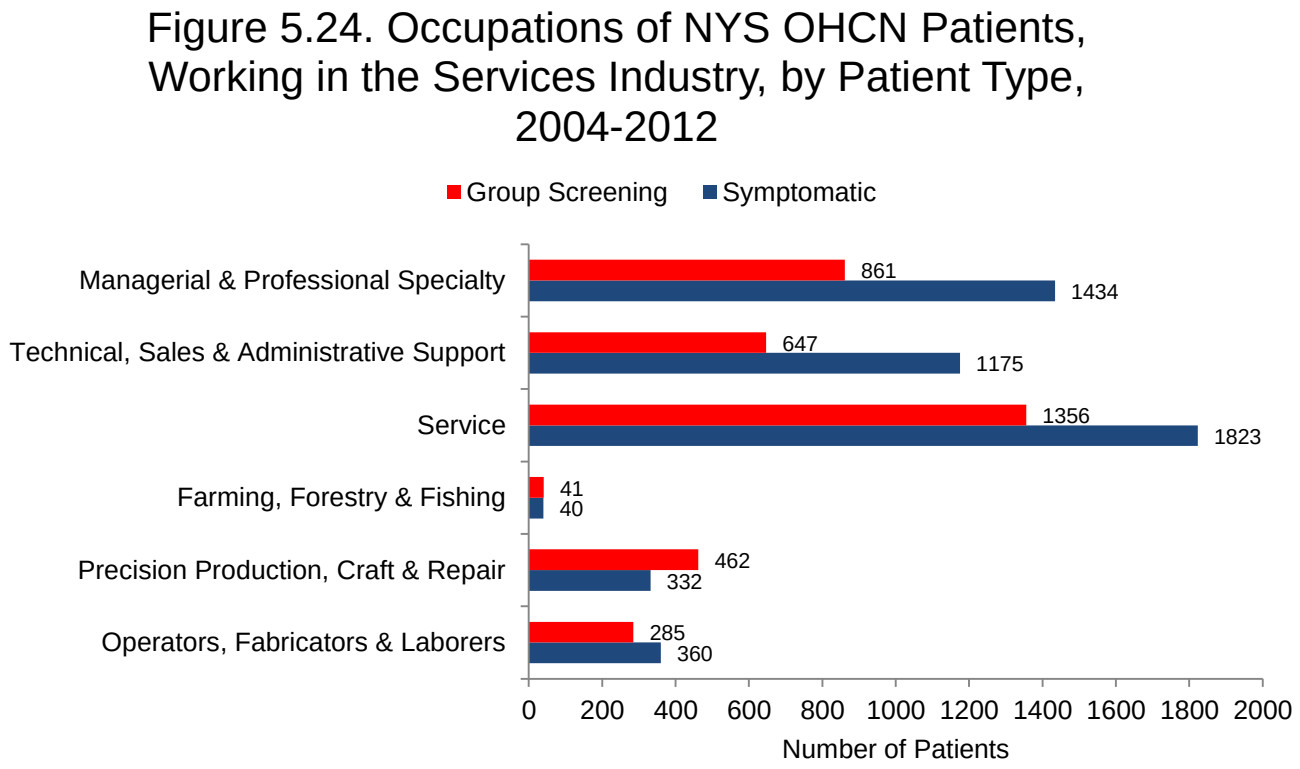


Figure 5.25. Diagnoses among NYS OHCN patients working in the services industry, by patient type. Among the patients employed in the services industry, there were 8,793 diagnoses of which 41% were group screenings (n=3,624) and 39% were V-codes (n=3,991). Excluding V-codes, patients working in the services industry were diagnosed primarily with diseases of the musculoskeletal system (n=1,460) including 41 diagnoses of enthesopathy of the elbow region and 84 diagnoses of myalgia (ICD-9-CM Codes 726.3 and 729.1, respectively). There were 1,015 diagnoses of injuries and poisonings, of which 720 were sprains or strains (ICD-9-CM Codes 840-848), and 84 were contusions on upper and lower limbs and 39 open wounds on fingers (ICD-9-CM Codes 923-924, and 883, respectively). There were 783 diagnoses of diseases of the respiratory system, including 239 diagnoses of asthma, 245 diagnoses of chronic pharyngitis and sinusitis, and 23 diagnoses of asbestosis (ICD-9-CM Codes 493, 472-473, 501, respectively).

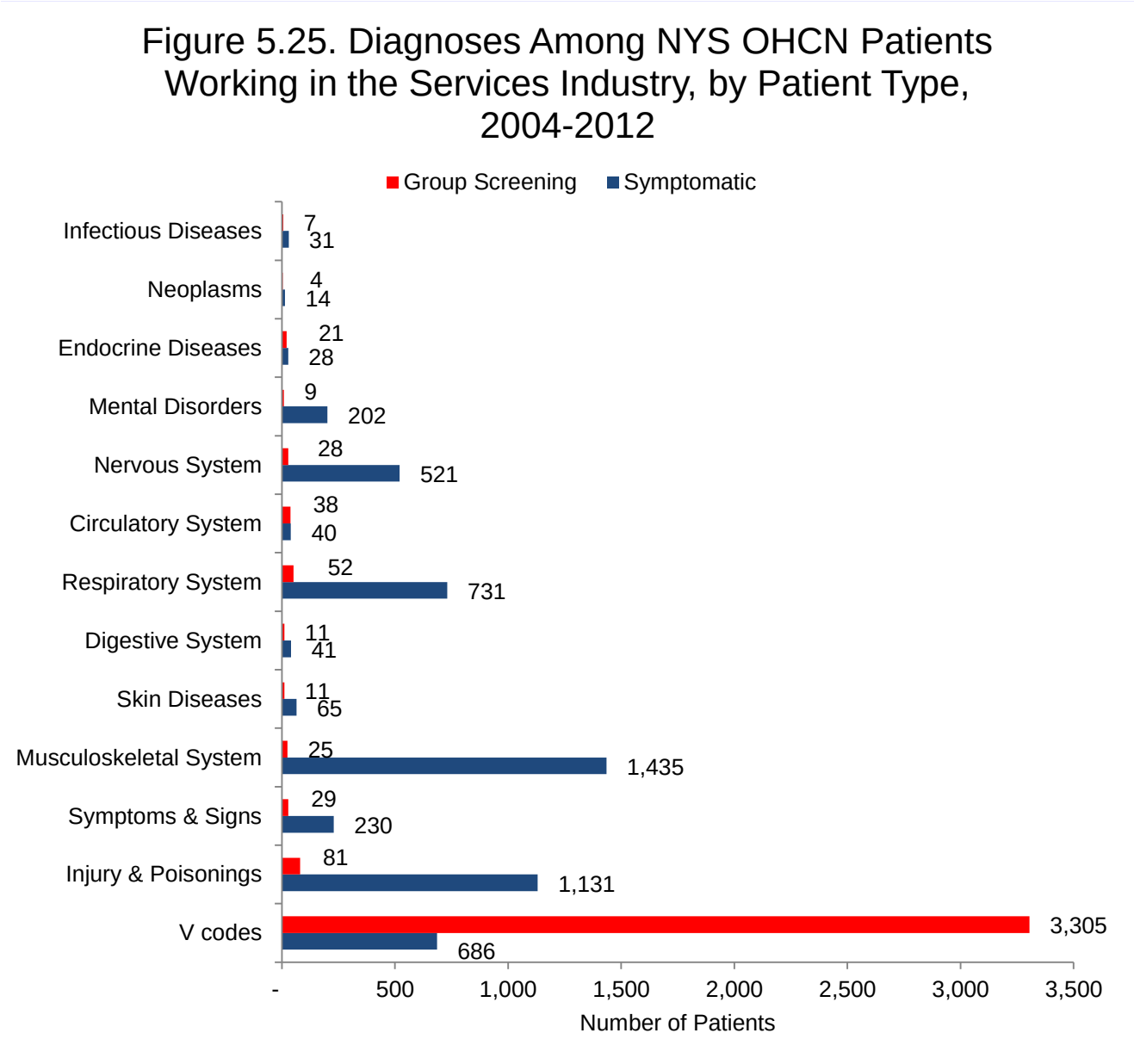
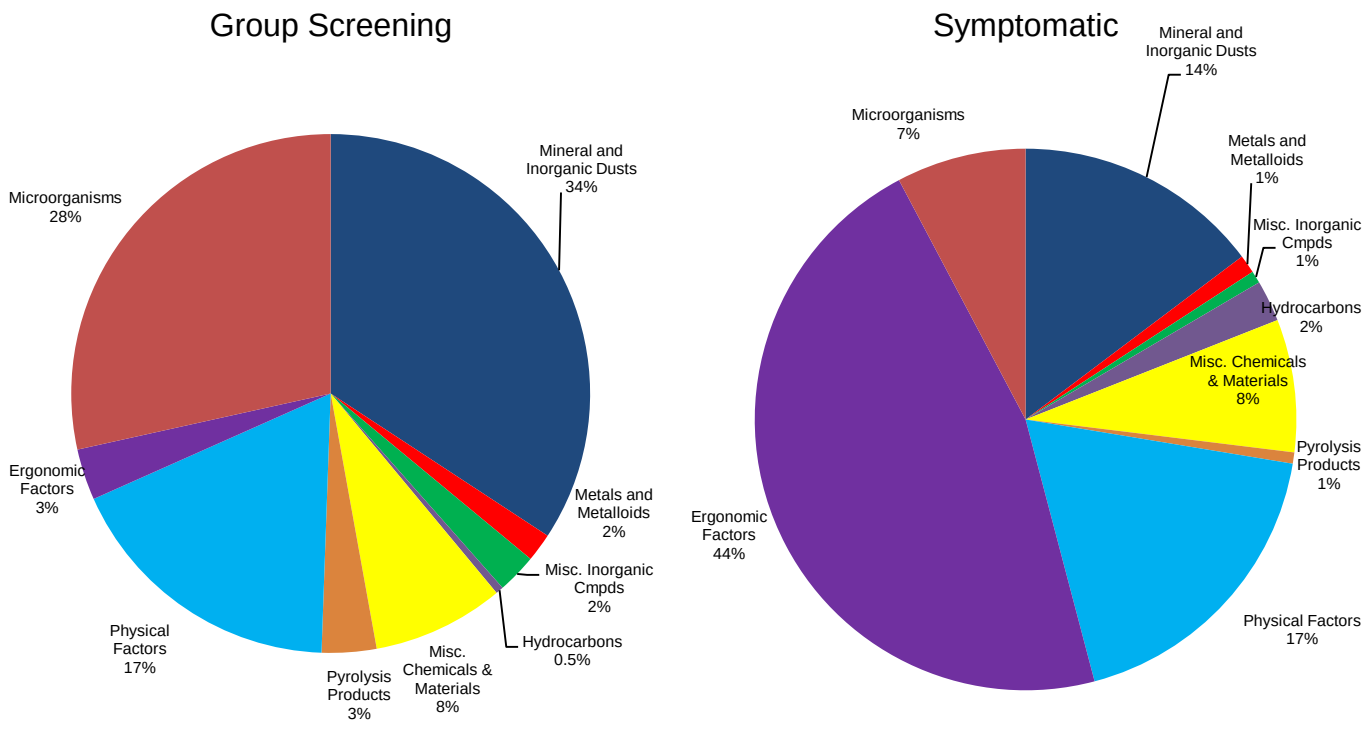



Figure 5.26. Exposures among NYS OHCN patients working in the services industry, by patient type. Among patients working in the services industry, there were 10,720 exposures identified. Of these, 3,166 were to ergonomic factors, of which 96% were symptomatic patients. These exposures were primarily repetitive motion (n=1,322) and stress (n=739). There were 2,245 exposures to mineral and inorganic dusts, of which 57% were group screenings.