

### **Chapter 3 - Work-related Hospitalizations in New York State: 2000-2010**

Individuals hospitalized with work-related injuries and illnesses have some of the most serious and costly adverse health outcomes. Nationwide, hospital charges for work-related conditions may exceed \$3 billion annually<sup>1</sup>. In New York State (NYS), most identified work-related hospitalizations are for treatment of injuries, poisonings and musculoskeletal disorders. Approximately one percent of all hospitalizations in NYS are work-related in nature, however this is known to be an underestimate.

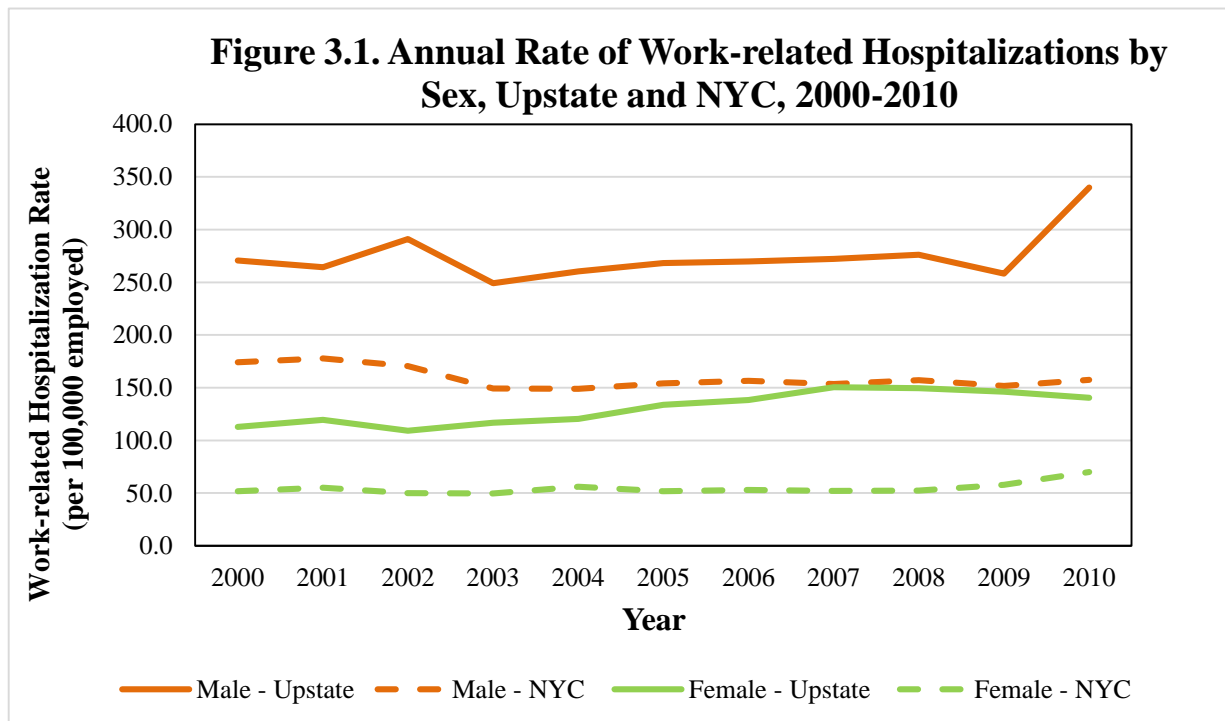
State hospital discharge data can be useful for surveillance of serious health conditions. Each hospitalization visit is an adverse event of major consequence to the individual, and thus the count and rate of total hospitalizations are good reflections of the public health burden experienced by the community. While information on “work-relatedness” of the health conditions are not available from these data, information is available for the expected payer responsible for reimbursement. The designation of Workers' Compensation as the expected primary payer is a relatively good proxy for the work-relatedness of injuries<sup>2</sup>.

There are on average, 14,800 work-related hospitalizations each year in NYS, although the number has varied from a low of about 13,650 in 2003 to a high of more than 16,200 in 2010 (data not shown). The overall rate of work related hospitalizations in NYS has increased from 169.2 hospitalizations per 100,000 workers in 2000 to 183.9 hospitalizations per 100,000 workers in 2010. This increase over time is statistically significant ( $p$  value  $< 0.01$ ).

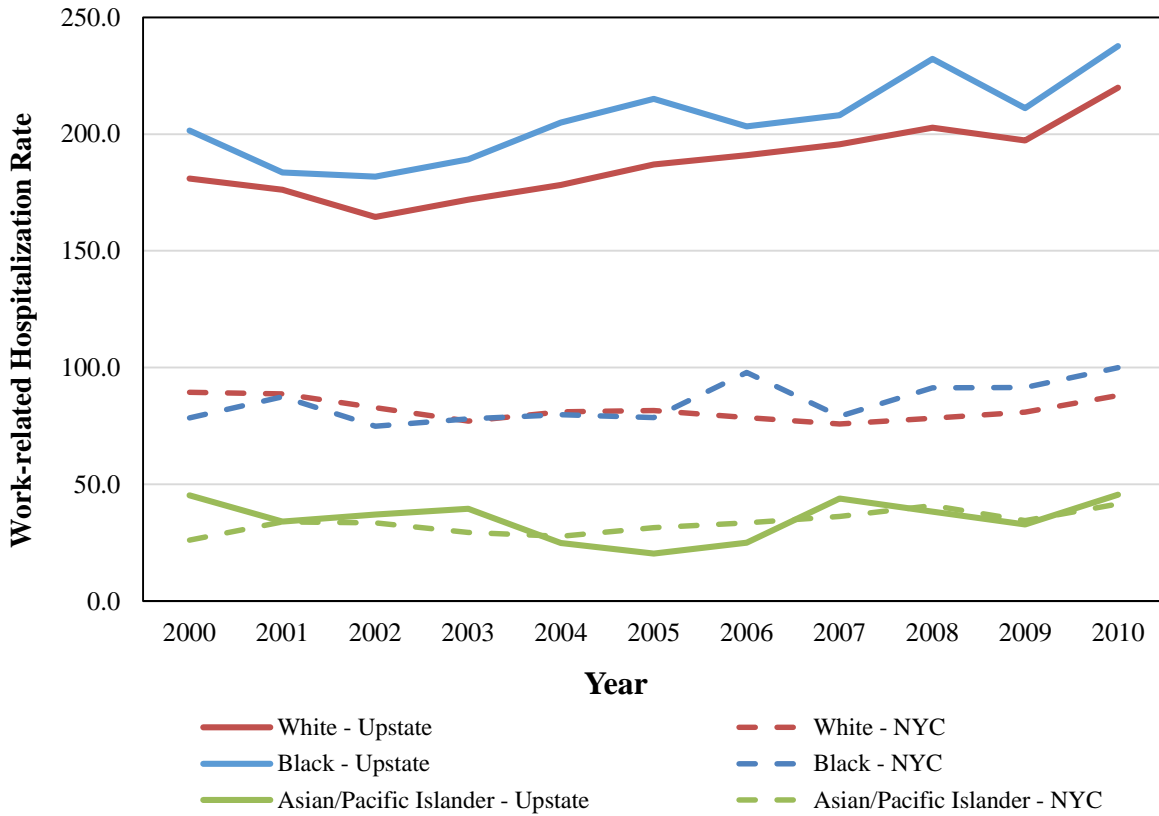
It is often useful, for purposes of analysis, to divide the state into two regions: Upstate (all regions of the state excluding the five boroughs of New York City) and New York City (NYC). Much of the data presented in this chapter are broken down geographically.

In NYS overall, there is a statistically significant increase in the rate of work-related hospitalizations among females from 97.5 hospitalizations per 100,000 employed persons in 2000 to 114.4 hospitalizations per 100,000 employed persons in 2010. There is also a similar increase in males over time (233.4 hospitalizations per 100,000 employed in 2000 to 259.0 hospitalizations per 100,000 employed in 2010) but it is not statistically significant (data not shown).

When broken down geographically, the rate of work-related hospitalizations is greater in Upstate New York, regardless of gender (Figure 3.1). There is a statistically significant increase from 2000-2010 in the rate of work-related hospitalizations in females in upstate, while the rate of work-related hospitalizations in NYC has remained relatively unchanged. However in males, there is an increase in the rate of work-related hospitalizations (not statistically significant) in upstate, while the rate of work-related hospitalizations in NYC is decreasing (also not statistically significant).



**Figure 3.2. Annual Rate of Work-related Hospitalizations by Race, Upstate and NYC, 2000-2010**

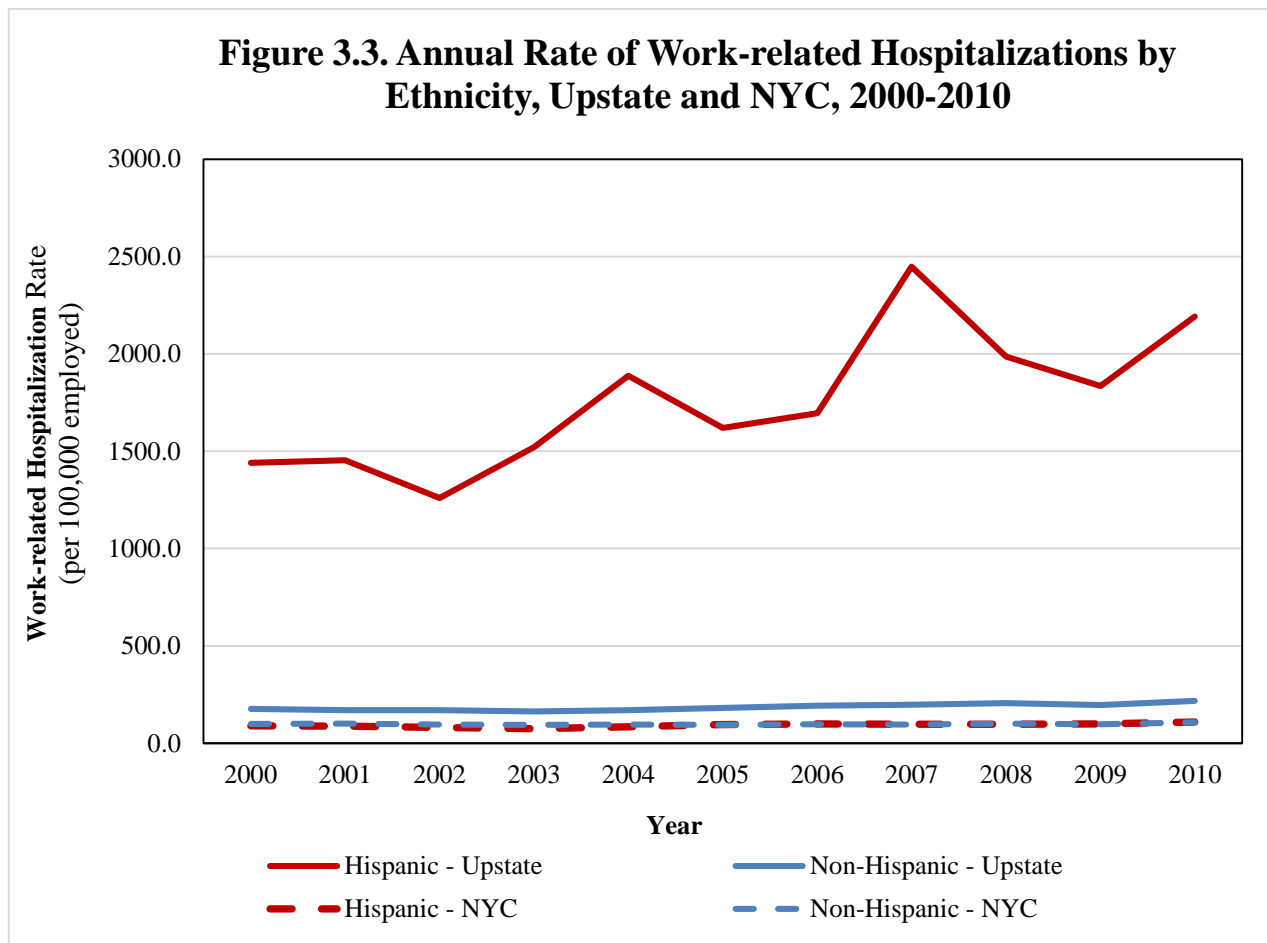


In NYS overall, there is a statistically significant increase in the rate of work-related hospitalizations among White workers (153.8 hospitalizations per 100,000 employed persons in 2000 to 178.2 hospitalizations per 100,000 employed persons in 2010) and Black workers (111.5 hospitalizations per 100,000 employed persons in 2000 to 141.1 hospitalizations per 100,000 employed persons in 2010) (data not shown). Although there was also an increase in the rate of work-related hospitalizations among Asian/Pacific Islander workers (30.9 hospitalizations per 100,000 employed persons in 2000 to 42.5 hospitalizations per 100,000 employed persons in 2010), the increase was not statistically significant (data not shown).

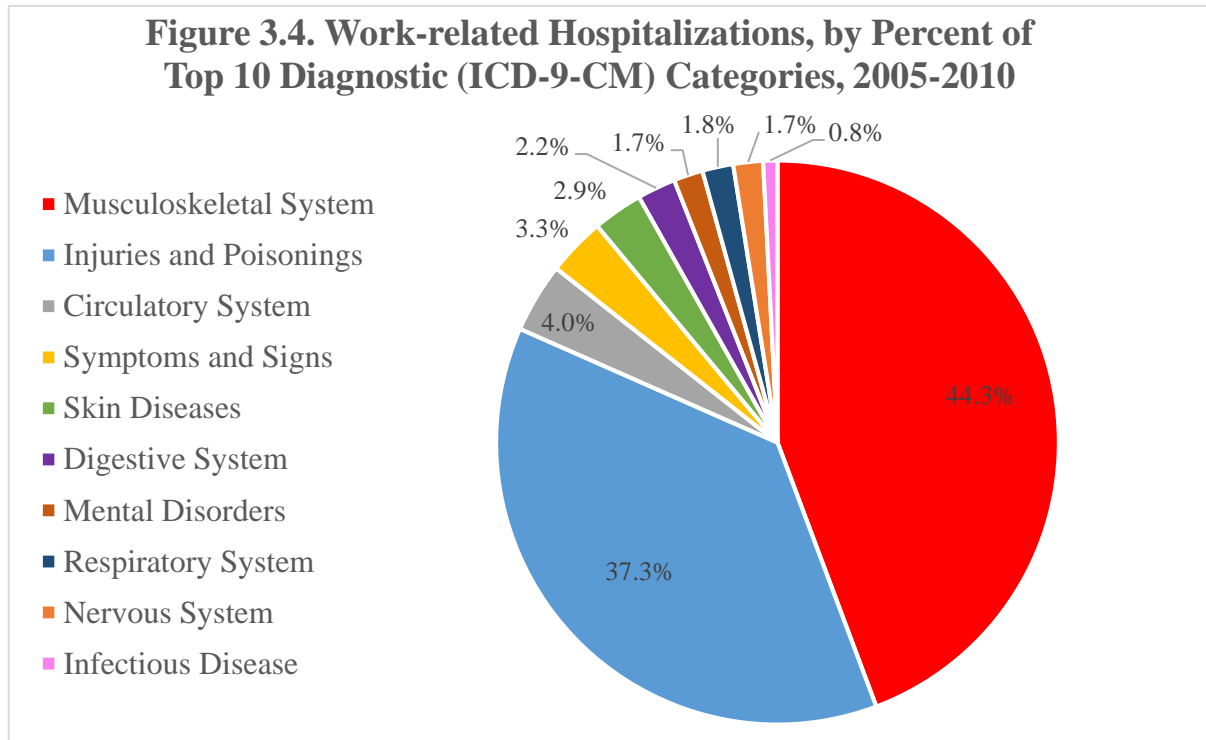
As shown in Figure 3.2, when broken down by region, the rate of work-related hospitalizations are higher in Upstate for all races, when compared to the rates in NYC. There has been a statistically significant increase in the rate of work-related hospitalizations in both Whites and Blacks in Upstate, while in NYC, the rate among Blacks has increased (increase is statistically significant) while the rate among Whites has been relatively stable throughout the years. The rate of work-related hospitalizations in Asian/Pacific Islanders in both Upstate and NYC has been relatively stable over time.

In NYS overall, there is a statistically significant increase in the rate of work-related hospitalizations among both Hispanic workers (104.4 hospitalizations per 100,000 employed persons in 2000 to 141.3 hospitalizations per 100,000 employed persons in 2010) and non-Hispanic workers (149.6 hospitalizations per 100,000 employed persons in 2000 to 178.5 hospitalizations per 100,000 employed persons in 2010) (data not shown). The rates don't vary greatly but non-Hispanic workers, when compared to Hispanic workers, do have a slightly higher rate of work-related hospitalizations in all of NYS.

However, as shown in Figure 3.3 when examined by geographical region, upstate Hispanic workers have a much higher rate of work-related hospitalizations than non-Hispanic workers. There is a statistically significant increase in rate over time of hospitalizations in upstate Hispanic workers. All other rates of work-related hospitalizations have remained relatively stable over time.



As seen in Figure 3.4, more than 44 percent of the work-related hospitalization diagnoses were diseases of the musculoskeletal system and connective tissue (ICD-9-CM<sup>1</sup> codes 710-739). An additional 37 percent were due to injuries and poisonings (ICD-9-CM codes 800-999<sup>2</sup>). The most frequently diagnosed musculoskeletal disorders were osteoarthritis and arthritis of the spine; disc and other back disorders; disorders to bone, cartilage and muscles; and disorders to soft tissues and joints. The most frequent injury and poisoning diagnoses were fractures to the legs, arms and vertebra, and concussions and other head-related trauma. Slightly more than five percent of all injuries were traumatic brain injuries.



External cause of injury codes (E-codes) provide information on the cause and intent of the injuries diagnosed during the visit. In NYS, E-codes are required when the principal/primary diagnosis code is the range of 800.00-999.99 (injuries and poisonings, with E-code ranges E849.0-E849.9 and E930.0-E949.0 excluded). When an E-code in the range of E850.0-E869.9 or

<sup>1</sup> The International Classification of Disease, 9<sup>th</sup> edition, Clinical Modification (ICD-9-CM), is the official system of assigning codes to diagnoses and procedures associated with hospital utilization in the United States.

<sup>2</sup> It should be noted that 15% of the injury and poisoning cases had nature of injury codes of “Certain adverse effects not elsewhere classified” (ICD-9-CM code 995) or as “Complications of surgical and medical care, not elsewhere classified” (ICD-9-CM codes 996-999) that could not be classified into one of these categories. They were excluded from the presentation of this data.

E880.0-E928.9 is reported, then a place of injury code must also be reported. The place of injury code identifies the place where the injury occurred.

**Table 3.1. Percent of Top 10 Unintentional External Cause of Injury Codes for Injury and Poisoning Work-related Hospitalizations, New York State, 2000-2010**

<b>External Cause of Injury</b>	<b>E code</b>	<b>Percent</b>
<b>Unintentional Falls</b>	<b>E880-E886, E888</b>	<b>61.1%</b>
Unintentional fall on same level from slipping, tripping or stumbling	E885.9	21.5%
Unintentional fall on or from ladders or scaffolding	E881.0	13.4%
Other unintentional fall from one level to another	E884.9	10.6%
Other and unspecified fall	E888.8	8.4%
Unspecified fall	E888.9	7.2%
<b>Motor Vehicle Traffic Crashes</b>	<b>E810-E819</b>	<b>15.2%</b>
Other motor vehicle traffic crash involving collision with motor vehicle	E812.0	9.1%
Motor vehicle traffic crash involving collision with pedestrian injuring pedestrian	E814.7	6.1%
<b>Other Unintentional Injuries</b>	<b>E916-E928</b>	<b>23.6%</b>
Struck accidentally by falling object	E916	9.5%
Other and unspecified environmental and accidental causes	E928.9	7.2%
Accidents caused by machinery	E919.8	6.9%

Over 60 percent of all injury work-related hospitalizations are due to unintentional falls (Table 3.1), with almost a quarter of these due to unintentional falls on the same level from slipping, tripping, or stumbling. Fifteen percent of work-related injuries are due to motor vehicle traffic crashes, while more than 23 percent are due to other unintentional injuries, including struck accidentally by falling object (9.5%) and accidents caused by machinery (6.9%).

<sup>1</sup> Dembe, A. E., Mastroberti, M. A., Fox, S. E., Bigelow, C. and Banks, S. M. (2003), Inpatient hospital care for work-related injuries and illnesses. *Am. J. Ind. Med.*, 44: 331–342. doi: 10.1002/ajim.10273

<sup>2</sup> Sorock GS, Smith E, Hall N. An evaluation of New Jersey's hospital discharge database for surveillance of severe occupational injuries. *Am J Ind Med* 1993;23:427-437.