

# Mental Health Comorbidities Among New York Residents Treated For Injuries at a Hospital, 2014

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## Background

In New York State, injuries are a leading cause of preventable death and unnecessary hospital treatment. Understanding the underlying causes or contributing factors of these events is important for prevention activities. Mental health conditions have broadly been shown to be possible risk factors for different types of injuries, both intentional and unintentional in nature. However, quantifying the occurrence of these injuries can be difficult, as many injuries are treated independently of the mental health conditions they may be associated with, such as in hospitals outside of the mental health clinics or primary care offices where other conditions are managed.

This poster looks to quantify and examine the extent to which various mental health conditions are coded with injuries in hospital and emergency department discharge reimbursement data. While likely an undercount, this presents a picture of the current available data, and a possible method for evaluating this connection.

## Methods

New York State inpatient hospitalizations and outpatient emergency department discharges were combined and analyzed with SAS 9.4. Incidence cases with a discharge date during the 2014 calendar year were limited to injuries with an International Classification of Disease, 9th Edition, Clinical Modification (ICD-9-CM) diagnosis code of 800-999 or any external cause code. Indicators were created for cases with a mental health condition (290-319) coded in one of the 24 diagnosis fields, as well as additional indicators for sub conditions of interest. Among 1,672,246 injuries, 269,614 cases were identified with any type of mental health diagnosis code, of which 20,078 had multiple mental health codes. Type of injury, care received, and outcomes were examined. Demographics were assessed including age, gender and race.

Category	ICD-9-CM Codes Used
All Injuries	800-999, Any External Cause Code (E000-E999)
Any Mental Health Code	290-319
Dementia (Any Type)	290, 294.1, 294.2, 331.0-331.2, 331.4, 331.82, 333.4
Schizophrenia	295, 299.9
Episodic Mood Disorders (Includes episodic affective disorders, such as bipolar disorder, major depressive disorder, etc.)	296, 313.1
Personality Disorders (Includes: Paranoid, Affective, Schizoid, Histrionic, dependent, antisocial, and other personality disorders)	301
ADHD/ADD (Hyperkinetic syndromes and disorders)	314
Autism	299.0

## Results

### Case Counts, and Level of Care Received

Condition	Total # (%)	Emergency Department # (%)	Hospital Admission # (%)
All Injuries	1,672,246 (100%)	1,517,064 (91%)	155,182 (9%)
Injuries With Any Mental Health Code	269,614 (16%)	189,265 (70%)	80,349 (30%)
Dementia	30,439 (2%)	13,242 (44%)	17,197 (57%)
Episodic Mood Disorders	23,515 (1%)	11,325 (48%)	12,190 (52%)
ADHD/ADD	9,497 (<1%)	7,833 (83%)	1,664 (18%)
Schizophrenia	8,806 (<1%)	4,202 (48%)	4,604 (52%)
Personality Disorders	4,196 (<1%)	1,298 (31%)	2,898 (67%)
Autism	2,487 (<1%)	2,212 (89%)	275 (11%)

\*Total percentages are out of all injury cases, emergency department and hospital admission percentages are out of row specific totals.

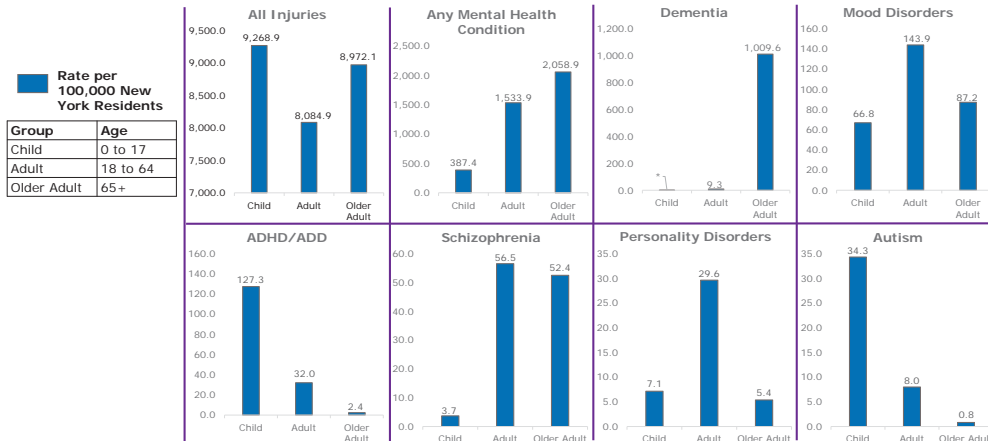
## Results

### Leading Specified Causes of Hospital Treated Injuries

Rank	All Injuries	All Mental Health	Dementia	Episodic Mood Disorders	ADHD/ADD	Schizophrenia	Personality Disorders	Autism
1	Fall (31%)	Fall (36%)	Fall (79%)	Self-Inflicted (55%)	Fall (19%)	Fall (32%)	Self-Inflicted (54%)	Fall (28%)
2	Struck By, Against (11%)	Assault (8%)	Other Specified (2%)	Fall (21%)	Struck By, Against (15%)	Self-Inflicted (14%)	Fall (10%)	Struck by, Against (15%)
3	Overexertion (8%)	Self-Inflicted (7%)	Struck by, Against (2%)	Poisoning/Overdose (8%)	Self-Inflicted (10%)	Assault (9%)	Poisoning/Overdose (6%)	Other Specified (9%)
4	Traffic, Occupant (7%)	Struck by, Against (6%)	Poisoning/Overdose (2%)	Assault (7%)	Assault (8%)	Poisoning/Overdose (7%)	Assault (5%)	Other Specified, NEC (5%)
5	Cut/Pierce (7%)	Traffic, Occupant (5%)	Other Specified, NEC (2%)	Undetermined (5%)	Cut/Pierce (6%)	Struck By, Against (4%)	Undetermined (5%)	Cut/Pierce (5%)

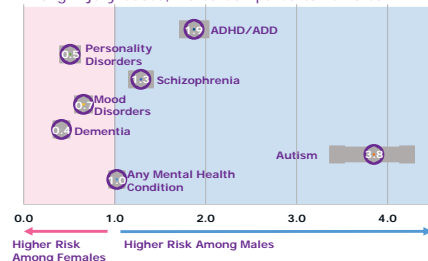
● = Unintentional ● = Intentional ● = Undetermined

### Rates By Age Group



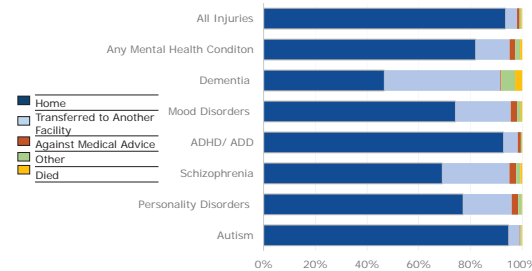
### Gender and Increased Risk

Risk Ratio and 95% CI of a Mental Health Comorbidity Among Injury Cases, Males Compared to Females



### Discharge Outcomes

Percent of Cases for Each Mental Health Comorbidity

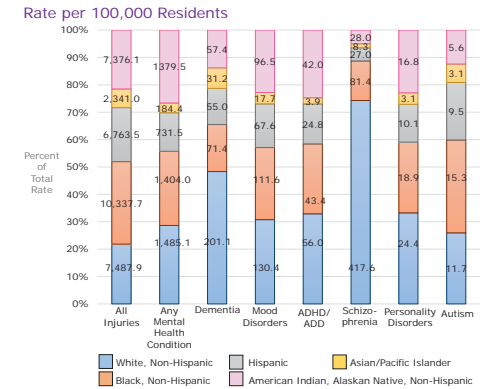


### Increased Length of Stay (in Days)

Condition	Increased Days	Estimate (95% Confidence Interval)
Any Mental Health Code	0.24*	1.24 (1.24-1.25)
Dementia	0.14*	1.14 (1.13-1.15)
Episodic Mood Disorders	0.46*	1.46 (1.45-1.47)
ADHD/ADD	0.16*	1.16 (1.14-1.19)
Schizophrenia	1.10*	2.10 (2.09-2.13)
Personality Disorders	0.70*	1.70 (1.69-1.73)
Autism	0.86*	1.86 (1.80-1.94)

Uses Zero Truncated Poisson Regression, controlling for age, race, and gender. The reference group includes all hospitalizations not included in each row/condition. \* Denotes significance at the .05 level.

### Racial Differences



## Conclusions

- Nearly 16% of all injury cases included a mental health code, and among examined mental health conditions, injury cases appeared to have worse outcomes including more hospital admissions, longer lengths of stay, and increased mortality.
- Cases with mental health conditions appeared to have higher percentages of intentional injuries, particularly for episodic mood and personality disorders where self-inflicted injuries were the leading cause of injury related hospital treatment.
- Although adults 18 to 64 made up the majority of cases, the highest rates of coded mental health comorbidities occurred in children and older adults, with major differences in case occurrence by gender.
- Black non-Hispanic New Yorkers, had the highest rates of injuries, but had lower rates of nearly all examined specific mental health injury comorbidities compared to other groups, with white non-Hispanics generally having the highest.

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